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LOUISIANA TECH UNIVERSITY



1982-1983 BULLETIN

HOW TO USE THIS BULLETIN

The bulletin is divided into four basic sections as follows:

GENERAL INFORMATION — This section contains information that is non-curricular in nature, but important to the university student. In it you will find information on: history of the University, accreditation, admissions and registration, expenses, academic regulations, student life, and other general type information.

ACADEMIC PROGRAM — The major academic divisions of the University are described in this section. Descriptions include programs offered, degree requirements, departmental divisions, and curricula requirements. The primary divisions within this section are:

Division of Admissions, Basic and Career Studies

College of Administration and Business

College of Arts and Sciences

College of Education

College of Engineering

College of Home Economics

College of Life Sciences

The Graduate School

Department of Air Force Aerospace Studies

COURSES OF INSTRUCTION — An alphabetical listing of courses is given with description, laboratory-lecture requirements, and credit hour value for all undergraduate and graduate courses offered.

UNIVERSITY PERSONNEL — An alphabetical listing for the following groups: faculty, administrators, councils, committees, and commissions is presented.

LOUISIANA TECH UNIVERSITY



F. Jay Taylor
President



BULLETIN
1982-83
USPS 320-580

Louisiana Tech University Subscribes
To The Policy of Equal Opportunity

Vol. LXXX

4th Qtr. (April May June) 1982

Number 4

Published quarterly by Louisiana Tech University, Keeny Circle, Ruston, Louisiana. Second Class postage paid at Ruston, Louisiana.

This bulletin is not a contract or an offer to contract.

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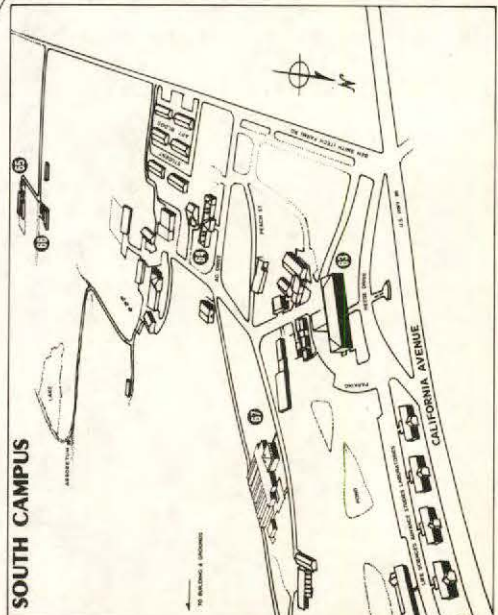
LOUISIANA TECH UNIVERSITY

FACILITIES

1. Kidd Hall (Residence Hall)
2. Nursery School (Home Economics)
3. Nathan Hall (Engineering)
4. Engineering Annex
5. Child Development Center (Home Economics & Sciences)
6. Graham Hall (Residence Hall)
7. Pearce Hall (Residence Hall)
8. Dudley Hall (Residence Hall)
9. Adams Hall (Residence Hall)
10. Aswell Hall (Residence Hall)
11. Adams Cafeteria
12. J. M. Harris (Housing Office)
13. J. M. Harris Gymnasium
14. Art Lab Building
15. Tolliver Dining Hall (Upstairs)
16. Campus Police & Post Office (Downstairs)
17. A Student Center
18. B Bookstore
19. Howard Auditorium
20. Bogard Hall (Engineering)
21. Visual Arts Building
22. Administration & Business Building
23. Wyly Tower of Learning
24. Madison Hall (Arts and Sciences)
25. Home Management
26. Hall Hall (Art Studios)
27. Research Center & Hearing Clinic
28. Woodward Hall (Education)
29. Education Laboratory
30. Band Building

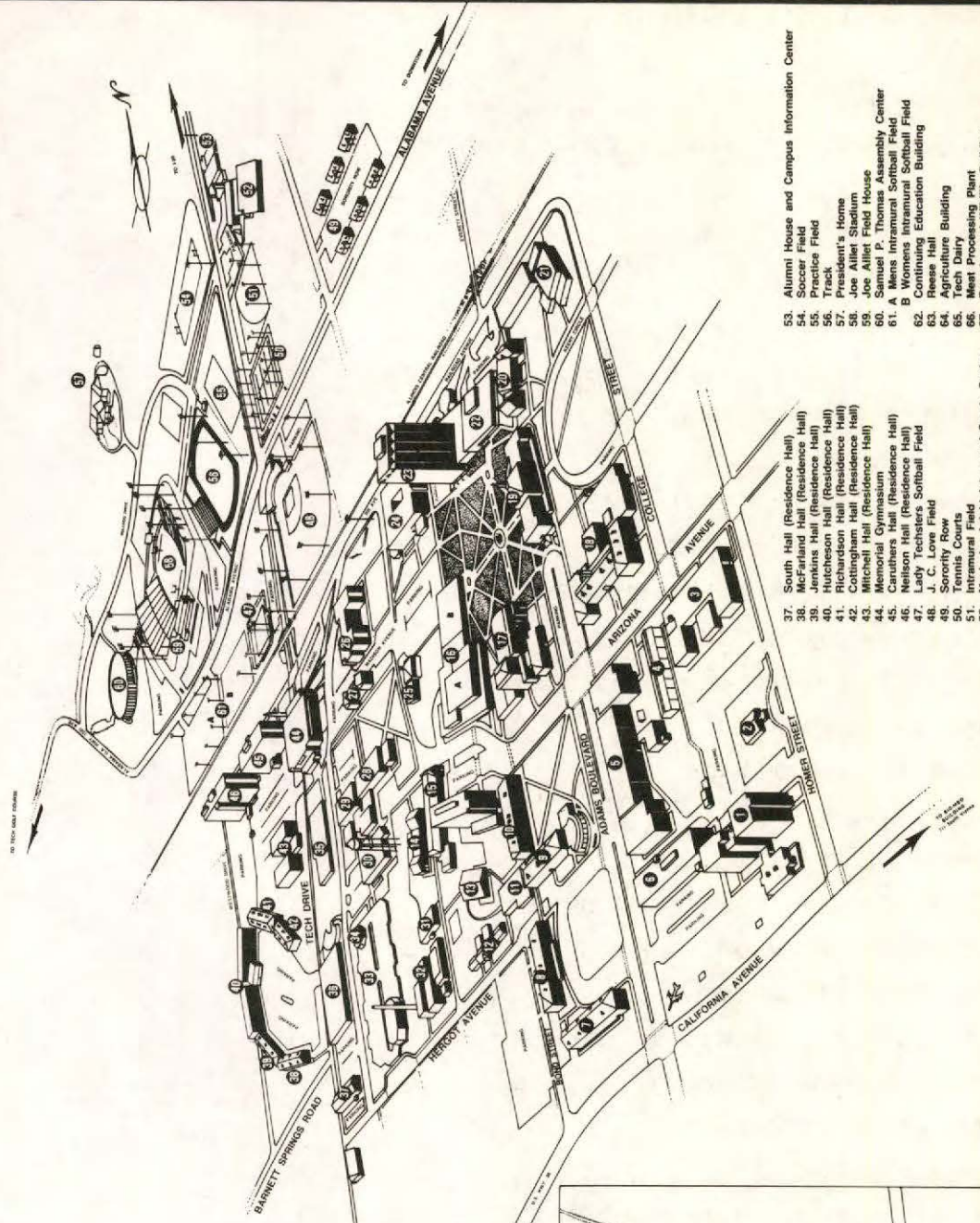
31. Garage (Buildings and Grounds)
32. Power Plant
33. A. E. Phillips Laboratory School
34. Planetarium
35. M. S. Carroll Natatorium
36. Wilson Cafeteria

SOUTH CAMPUS



37. South Hall (Residence Hall)
38. McFarland Hall (Residence Hall)
39. Jenkins Hall (Residence Hall)
40. Richeson Hall (Residence Hall)
41. Richeson Hall (Residence Hall)
42. Cottingham Hall (Residence Hall)
43. Mitchell Hall (Residence Hall)
44. Memorial Gymnasium
45. Canuthers Hall (Residence Hall)
46. Neilson Hall (Residence Hall)
47. Lady Techsters Softball Field
48. J. C. Low Field
49. Softball Courts
50. Tennis Courts
51. Intramural Field
52. Maxie Lambright Intramural Sports Center

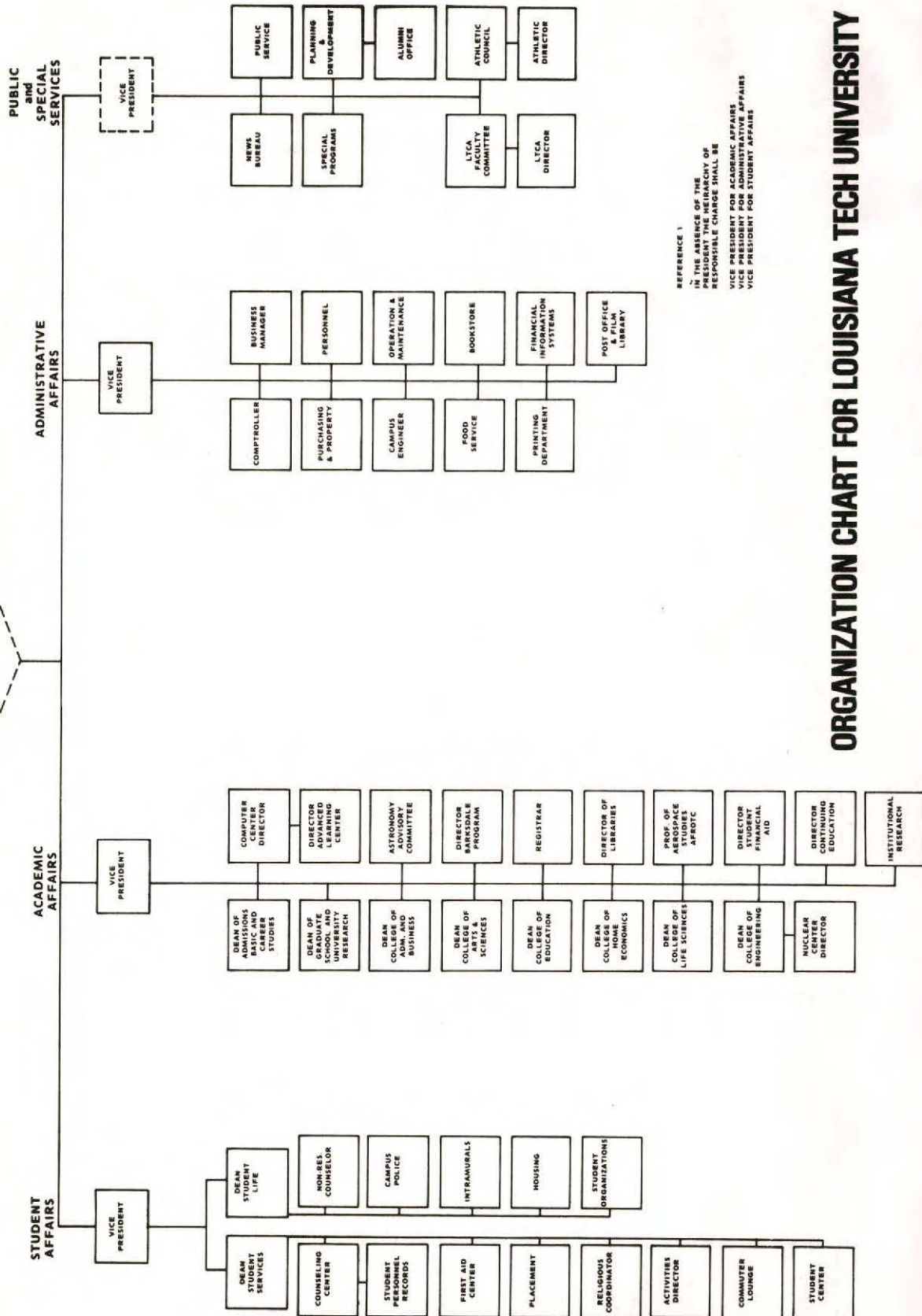
53. Alumni House and Campus Information Center
54. Soccer Field
55. Practice Field
56. Practice Field
57. Student's Home
58. Joe Allert Stadium
59. Joe Allert Field House
60. Samuel P. Thomas Assembly Center
61. A Mens Intramural Softball Field
62. B Womens Intramural Softball Field
63. Continuing Education Building
64. Science Hall Building
65. Tech Dairy
66. Meat Processing Plant
67. Forestry and Wildlife Building
68. Tech Commons



BOARD OF TRUSTEES

PRESIDENT

REFERENCE



REFERENCE 1
IN THE ABSENCE OF THE
PRESIDENT, THE VICE PRESIDENT
RESPONSIBLE CHARGE SHALL BE
VICE PRESIDENT FOR ACADEMIC AFFAIRS
VICE PRESIDENT FOR ADMINISTRATIVE AFFAIRS
VICE PRESIDENT FOR STUDENT AFFAIRS

ORGANIZATION CHART FOR LOUISIANA TECH UNIVERSITY

UNIVERSITY CALENDAR

ACADEMIC YEAR 1982-83

SUMMER QUARTER 1982-83

(First Quarter)

Completed application and transcripts for new Graduate School applicants due in Admissions Office.....	May 18, 1982 (Tues.)
Application for undergraduate admission or readmission.....	May 25 (Tues.)
Residence Halls Open	9:00am, May 31 (Mon.)
Food Service opens, noon meal.....	May 31 (Mon.)
Math Placement Exam	2:00pm, May 31 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00pm, May 31 (Mon.) WT 244
Summer Quarter begins.....	June 1 (Tues.)
Registration (alphabetical order) for all sessions	June 1 (Tues.) - June 2 Noon
Classes begin. Late registration fee applies	June 3 (Thurs.)
Fourth of July holiday for students begins.....	End of classes, July 2 (Fri.)
Food Service closes, after noon meal	July 2 (Fri.)
Food Service opens, night meal.....	July 5 (Mon.)
Fourth of July holiday for students ends.....	8:00am July 6 (Tues.)
First Session ends.....	July 9 (Fri.)
Second Session begins. Late registration fee applies.....	July 12 (Mon.)
Last day of classes.....	Aug. 13 (Fri.)
Food Service closes, after night meal.....	Aug. 13 (Fri.)
Residence Halls close.....	12:00 noon, Aug. 14 (Sat.)
Commencement exercises	8:00pm, Aug. 19 (Thurs.) Thomas Assembly Center
Summer Quarter ends	Aug. 19 (Thurs.)
Courses offered First Session only	June 1- July 9
Courses offered Second Session only	July 12 -Aug. 19

FALL QUARTER 1982-83

(Second Quarter)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office.....	Aug. 23 (Mon.)
Applications for Undergraduate admission or readmission due.....	Aug. 30 (Mon.)
Residence Halls open	9:00am, Sept. 7 (Tues.)
Food Service opens, noon meal.....	Sept. 7 (Tues.)
Math Placement Exam	2:00pm, Sept. 7 (Tues.) GTM 105
Mini-Orientation (all new students)	6:00pm, Sept. 7 (Tues.) WT 244
Fall Quarter begins	Sept. 8 (Weds.)
Registration (alphabetical order)	Sept. 8 (Weds.) - Sept. 9 (Thurs.)
Classes begin. Late registration fee applies	Sept. 10 (Fri.)
Last day of classes.....	Nov. 19 (Fri.)
Food Service closes, after night meal.....	Nov. 19 (Fri.)
Residence Halls close.....	12:00 noon, Nov. 20 (Sat.)
Commencement exercises	10:00am, Nov. 23 (Tues.) Thomas Assembly Center
Fall Quarter ends	Nov. 23 (Tues.)

WINTER QUARTER 1982-83

(Third Quarter)

Complete applications and transcripts for new Graduate School applicants due in Admissions Office.....	Nov. 16 (Tues.)
Applications for Undergraduate admission or readmission due.....	Nov. 23 (Tues.)
Residence Halls open	9:00am, Nov. 29 (Mon.)
Food Service opens, noon meal.....	Nov. 29 (Mon.)
Math Placement Exam	2:00pm, Nov. 29 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00pm, Nov. 29 (Mon.) WT 244
Winter Quarter begins.....	Nov. 30 (Tues.)
Registration (alphabetical order)	Nov. 30 (Tues.) - Dec. 1 (Weds.)
Classes begin. Late registration fee applies	Dec. 2 (Thurs.)
Christmas recess for students begins.....	End of classes, Dec. 17 (Fri.)
Residence Halls close.....	7:00pm, Dec. 17 (Fri.)
Food Service closes, after night meal.....	Dec. 17 (Fri.)
Residence Halls open	1:00pm, Jan. 2, 1983 (Sun.)
Food Service opens, night meal.....	Jan. 2 (Sun.)
Christmas recess for students ends	8:00am, Jan. 3 (Mon.)
Mardi Gras Holidays for students begins.....	End of classes, Feb. 11 (Fri.)

Food Service closes, after night meal.....	Feb. 11 (Fri.)
Food Service opens, night meal.....	Feb. 15 (Tues.)
Mardi Gras Holidays for students ends	8:00am, Feb. 16 (Wed.)
Last day of classes.....	Feb. 25 (Fri.)
Food Service closes, after night meal.....	Feb. 25 (Fri.)
Residence Halls close.....	12:00 noon, Feb. 26 (Sat.)
Commencement exercises	10:00am, Mar. 3 (Thurs.) Thomas Assembly Center
Winter Quarter ends	Mar. 3 (Thurs.)

SPRING QUARTER 1982-83

(Fourth Quarter)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office.....	Feb. 22, 1983 (Tues.)
Applications for Undergraduate admission or readmission due.....	Mar. 1 (Tues.)
Residence Halls open	9:00am, Mar. 7 (Mon.)
Food Service opens, noon meal.....	Mar. 7 (Mon.)
Math Placement Exam	2:00pm, Mar. 7 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00pm, Mar. 7 (Mon.) WT 244
Spring Quarter begins	Mar. 8 (Tues.)
Registration (alphabetical order)	Mar. 8 (Tues.) - Mar. 9 (Weds.)
Classes begin. Late registration fee applies	Mar. 10 (Thurs.)
Easter Recess for students begins	End of classes, March 31 (Thurs.)
Residence Halls close.....	7:00pm, March 31 (Thurs.)
Food Service closes, after night meal.....	March 31 (Thurs.)
Residence Halls open	1:00pm, Apr. 4 (Mon.)
Food Service opens, night meal.....	Apr. 4 (Mon.)
Easter Recess for students ends	8:00am, Apr. 5 (Tues.)
Last day of classes.....	May 20 (Fri.)
Food Service closes, after night meal.....	May 20 (Fri.)
Residence Halls close.....	12:00 noon, May 22 (Sun.)
Commencement exercises	8:00pm, May 21 (Sat.) Thomas Assembly Center
Spring Quarter ends	May 21 (Sat.)

ACADEMIC YEAR 1983-84

SUMMER QUARTER 1983-84

(First Quarter)

Completed application and transcripts or new Graduate School applicants due in Admissions Office.....	May 17, 1983 (Tues.)
Application for undergraduate admission readmission due	May 24 (Tues.)
Residence Halls Open	9:00a.m., May 30 (Mon.)
Food Service Opens, Noon meal	May 30 (Mon.)
Math Placement Exam	2:00p.m., May 30 (Mon.) GTM 105
Mini-Orientation (first-time students)	4:00p.m. May 30 (Mon.) WT 244
(new transfer students)	5:00p.m. May 30 (Mon.) WT 244
Summer Quarter begins.....	May 31 (Tues.)
Registration (alphabetical order) for all sessions	May 31 (Tues.) - June 1 (Weds. noon)
Classes begin. Late registration fee applies	June 2 (Thurs.)
Fourth of July holiday for student begins.....	End of classes, July 1, (Fri.)
Food Service closes, after noon meal	July 1 (Fri.)
Food Service opens, night meal.....	July 5 (Tues.)
Fourth of July holiday for students ends.....	8:00a.m., July 6 (Weds.)
First Session ends.....	July 8 (Fri.)
Second Session begins. Late registration fee applies.....	July 11 (Mon.)
Last day of classes.....	August 12 (Fri.)
Food Service closes, after night meal.....	August 12 (Fri.)
Residence Halls close	12:00 noon, August 13 (Sat.)
Commencement exercises	8:00p.m. August 18 (Thurs.)
	Thomas Assembly Center
Summer Quarter ends	August 18 (Thurs.)
Courses offered First Session only	May 31-July 8
Courses offered Second Session only	July 11-August 18

FALL QUARTER 1983-84

(Second Quarter)

Completed application and transcripts for new Graduate School applications due in Admissions Office.....	August 23 (Tues.)
Applications for Undergraduate admission or readmission due.....	August 30 (Tues.)

Residence Halls open 9:00a.m., Sept. 6 (Tues.)
 Food Service opens, noon meal Sept. 6 (Tues.)
 Math Placement Exam 2:00p.m., Sept. 6 (Tues.) GTM 105
 Mini-Orientation (first-time students) 4:00pm Sept. 6 (Tues.) WT 244
 (new transfer students) 5:00pm Sept. 6 (Tues.) WT 244
 Fall Quarter begins Sept. 7 (Wed.)
 Registration (alphabetical order) Sept. 7 (Wed.)-Sept. 8 (Thurs.)
 Classes begin. Late registration fee applies Sept. 9 (Fri.)
 Food Service closes, after night meal Nov. 18 (Fri.)
 Residence Halls close 12:00 noon, Nov. 19 (Sat.)
 Commencement exercises 10:00a.m., Nov. 22 (Tues.)
 Thomas Assembly Center
 Fall Quarter ends Nov. 22 (Tues.)

WINTER QUARTER 1983-84

Third Quarter)

Completed applications and transcripts for new Graduate School
 applicants due in Admissions office Nov. 15 (Tues.)
 Applications for Undergraduate admission or readmission Nov. 22 (Tues.)
 Residence Halls open 9:00a.m., Nov. 28 (Mon.)
 Food Service opens, noon meal Nov. 28 (Mon.)
 Math Placement Exam 2:00p.m., Nov. 28 (Mon.) GTM 105
 Mini-Orientation (first-time students) 4:00pm, Nov. 28 (Mon) WT 244
 (new transfer students) 5:00pm, Nov. 38 (Mon) WT 244
 Winter Quarter begins Nov. 29 (Tues.)
 Registration (alphabetical order) Nov. 29 (Tues.)-Nov. 30 (Wed.)
 Classes begin. Late registration fee applies Dec. 1 (Thurs.)
 Christmas recess for Students begins End of classes, Dec. 16 (Fri.)
 Residence Halls close 7:00p.m., Dec. 16 (Fri.)
 Food Service closes, after night meal Dec. 16 (Fri.)
 Residence Halls open 1:00p.m., Jan 2, 1984 (Mon.)
 Food Service opens, night meal Jan. 2 (Mon.)
 Christmas recess for students ends 8:00a.m., Jan. 3 (Tues.)
 Last day of classes Feb. 24 (Fri.)
 Food Service closes, after night meal Feb. 24 (Fri.)
 Residence Halls close 7:00p.m., Feb. 25 (Sat.)
 Commencement exercises 10:00a.m., March 1 (Thurs.)
 Thomas Assembly Center
 Winter Quarter ends March 1 (Thurs.)

SPRING QUARTER 1983-84

(Fourth Quarter)

Completed applications and transcripts for new Graduate School
 applicants due in Admissions Office Feb. 21 (Tues.)
 Applications for Undergraduate admission or readmission due Feb. 28 (Tues.)
 Mardi Gras March 6 (Tues.)
 Residence Halls open 9:00a.m., March 7 (Weds.)
 Food Service opens, noon meal March 7 (Weds.)
 Math Placement Exam 2:00p.m., March 7 (Weds.) GTM 105
 Mini-Orientation (first-time students) 4:00pm, Mar. 7 (Wed) WT 244
 (new transfer students) 5:00pm, Mar. 7 (Wed) WT 244
 Spring Quarter begins March 8 (Thurs.)
 Registration (alphabetical order) March 8 (Thurs.)-March 9 (Fri.)
 Classes begin. Late registration fee applies March 12 (Mon.)
 Easter Recess for students begins End of classes, April 19 (Thurs.)
 Residence Halls close 7:00p.m., April 19 (Thurs.)
 Food Service closes, after night meal April 19 (Thurs.)
 Residence Halls open 1:00p.m., April 23 (Mon.)
 Food Service opens, night meal April 23 (Mon.)
 Easter Recess for students ends 8:00a.m., April 24 (Tues.)
 Last day of classes May 25 (Fri.)
 Food Service closes, after night meal May 25 (Fri.)
 Commencement Exercises 8:00p.m., May 26 (Sat.) Thomas Assembly Center
 Residence Halls close 12:00 noon, May 27 (Sun.)
 Spring Quarter ends May 26 (Sat.)

DIRECTORY

OFFICERS OF THE ADMINISTRATION

F. Jay Taylor, B.A., M.A., Ph.D. (1962)	President
Daniel D. Reneau, B.S., M.S., Ph.D. (1967)	Vice President for Academic Affairs
George W. Byrnside, B.S. (1960)	Vice President for Administrative Affairs
E. S. Foster, Jr., B.S., M.S. (1960)	Vice President for Student Affairs
Bob R. Owens, B.B.A., M.B.A., Ph.D. (1965)	Dean, College of Administration and Business
Paul J. Pennington, B.A., M.A., Ph.D. (1952)	Dean, College of Arts and Sciences
Jerry W. Andrews, B.S., M.S., Ed.D. (1982)	Dean, College of Education
Jack Thigpen, B.S., M.S., Ph.D. (1947)	Dean, College of Engineering
Jeanne M. Gilley, B.A., M.S.E., Ph.D. (1973)	Dean, College of Home Economics
Hal B. Barker, B.S., M.S., Ph.D. (1949)	Dean, College of Life Sciences
Patsy Lewis, B.A., M.A. (1965)	Dean, Division of Admissions, Basic and Career Studies
John E. Maxfield, B.S., M.S., Ph.D. (1981)	Dean, Graduate School and University Research

WHOM TO CONTACT AT LOUISIANA TECH FOR:

Academic Records, Transcripts and Registration	Office of the Registrar 318/257-2176
Admissions (Undergraduate and Graduate), Orientation, and High School Relations	Division of Admissions, Basic and Career Studies 318/257-3036
Dormitories and Student Housing	Housing Office 318/257-4917
Fees and Business Matters	Office of the Business Manager 318/257-4325
Financial Aid (Scholarships, Loans, Grants and Work-Study)	Director of Financial Aid 318/257-2641
Foreign Student Information	Counseling Center 318/257-2488
Graduate School	Dean of Graduate School 318/257-3848
Placement Office	Director of Placement 318/257-4336
Student Activities and Services	Student Center 318/257-3479
Veterans Information	Office of the Registrar 318/257-2176

General Information

HISTORY

Tech's formal name is Louisiana Tech University, but when it was founded (in 1894) by Act 68 of the General Assembly, it was called Industrial Institute and College of Louisiana. Act 68, which specified that the school be located in Ruston, provided for the establishment of "a first-class" institution designed to educate citizens of the state in the arts and sciences and in "the practical industries of the age." The school was located on 20 acres of land and in a single building, both donated by the city of Ruston. By September, 1895, with its president and faculty of six in residence, Tech opened its door to 202 students.

The first degree offered by the school was a "Bachelor of Industry." This degree was granted in fields as broadly diverse as music and telegraphy. The first student to receive the degree was Harry Howard, Class of 1897. Mr. Howard was not required to go through a formal graduation program. After his qualifications were examined, Col. A. T. Prescott, the school's first president, awarded the degree. The first graduation exercises were not held until the following year, 1898, when ten degrees were awarded in a ceremony at the Ruston Opera House. In all, there were 1,346 Bachelor of Industry degrees awarded.

Since 1894, the institution's name, purpose and functions have been modified as the needs of those whom it served have changed. In 1921, the school's name was changed to Louisiana Polytechnic Institute. The Bachelor of Industry degree was discarded and the degrees standard to American education were granted. As the college increased in enrollment and offerings, constant changes were made to meet these additional responsibilities; in 1970, the school's name was changed to Louisiana Tech University.

Since 1921, the University has prospered: there are 235 acres on the main campus, 472 at the demonstration farm, 94 acres of forest land in Webster Parish, 150 acres a few miles west of Ruston, and 5 acres on Lake D'Arbonne. In addition, Tech leases 4 acres for a Forestry Camp on Corney Lake and 352 acres of farm and pasture land for the animal production units. There are about 110 buildings on the campus and the majority are air conditioned.

The focal point of the campus is the 'Tech Commons', the center of which is a contemporary marble and granite fountain named the 'Spirit of Tech'. Prescott Memorial Library (named for the school's first president), Wylly Tower of Learning, and Madison Hall are at the north end of the Commons. Keeny Hall (after the school's sixth president) is at the east side, Howard Auditorium (for Tech's first graduate) is at the south side. The west side is the Student Center. The remaining buildings surround the 'Tech Commons'.

ACCREDITATION

Louisiana Tech University is accredited by the Southern Association of Schools and Colleges. It is also a member of the American Association of State Colleges and Universities, the American Council on Education, the Council of Graduate Schools in the United States, the Conference of Southern Graduate Schools, and the American Association of College Registrars and Admissions Officers and is affiliated with the National Commission on Accrediting and the National

Council of University Research Administrators. Certain departments and colleges of the University are approved by professional accrediting organizations in specific fields: the Accreditation Council of the American Assembly of Collegiate Schools of Business, the American Chemical Society, the Association for University Business and Economic Research, the Accreditation Board for Engineering and Technology, the American Home Economics Association, the National Association of Schools of Art, the American Medical Record Administration, the National Association of Schools of Music, the National Council for Accreditation of Teacher Education, and the National Architectural Accrediting Board.

EQUAL OPPORTUNITY POLICIES

Louisiana Tech University provides equal educational opportunities for all and this policy of equal opportunity is fully implemented in all programs.

ADMISSIONS

Louisiana Tech University has an open admissions policy as established by the State Board of Education. All high school graduates or students with equivalency diplomas are eligible for admission. There is no discrimination in admissions because of race, creed, sex or color.

EMPLOYMENT

Louisiana Tech University is committed to the principle of providing the opportunity for learning and development of all qualified citizens without regard to race, sex, religion, color, national origin, age, handicap, marital status, or veteran status for admission to, participation in, or employment in the programs and activities which the University sponsors or operates.

The President of the University has established the policy that all employment practices will be supervised on a continuous basis to be sure that all University administrators, deans, directors, department heads, and other budget unit heads take positive affirmative action in complying with the goals of equal employment opportunity.

DIVISION OF FINANCIAL AID

The Division of Financial Aid makes every effort to assist all students who need financial assistance in pursuit of their college career. There is no discrimination against any person because of race, creed, sex, color, national origin, religion, age, handicap, marital status or veteran status.

FAMILY EDUCATIONAL RIGHTS PRIVACY ACT

The following statement is issued in compliance with the Family Educational Rights and Privacy Act of 1974:

Louisiana Tech University has the responsibility for effectively supervising any access to and/or release of official data/information about its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly-defined

purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its collection and retention no longer exists. In this regard, Louisiana Tech University is committed to protecting to the maximum extent possible the right of privacy of all the individuals about whom it holds information, records, and files. Access to and release of such records is restricted to the student concerned, to others with the student's written consent, to officials within the school, to a court of competent jurisdiction and otherwise pursuant to law.

NOTICE: THE REGULATIONS CONTAINED IN THIS BULLETIN ARE BASED UPON PRESENT AND FORESEEN CONDITIONS AND THE UNIVERSITY RESERVES THE RIGHT TO MODIFY ANY STATEMENT IN ACCORDANCE WITH UNFORESEEN CONDITIONS.

ADMISSIONS

Completed applications, American College Test scores and official transcripts should be in the Admissions Office two weeks prior to the beginning of each quarter to insure having registration materials available at the regularly scheduled registration. An application fee of \$5 is required with all applications for admission, readmission, or transfer of the undergraduate or graduate student. International students are required to pay a \$15 application fee.

A HIGH SCHOOL GRADUATE may be admitted to the University by ACT-Application. When a high school junior or senior takes the American College Test and lists Tech as one of the choices, a pre-printed admission form is sent to the student for verification. When the ACT-APP is returned with the \$5 fee, the student's registration materials are prepared. The student must graduate from a four-year course in an accredited secondary school, or have successfully completed the General Educational Development Test. All students are required to submit ACT scores and all out-of-state students (except Arkansas, Mississippi, and Texas) must make a composite score of at least 20.

All students are required to take a Mathematics Placement Test before enrolling in a mathematics course. Also, transfer students who have not had a mathematics course at another institution are required to take the placement test. The time for the placement test will be noted in the Schedule of Classes for each quarter.

ADMISSION BY TRANSFER is permissible if the transferring student is eligible to re-enter the institution from which the applicant is transferring and the student **must** meet Tech's entrance requirements.

APPLICANTS FOR READMISSION to Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the summer term).

APPLICANTS FROM FOREIGN COUNTRIES

See Foreign Student Handbook for details.

ADMISSION TO THE GRADUATE SCHOOL requires that all official transcripts and admission application forms be submitted to the Admissions Office at least two (2) weeks in advance of registration for the session in which the student expects to enroll. (See the Graduate School Section for specific details.)

AN EARLY ADMISSION POLICY for high ability students was adopted by the State Board of Education in 1971. To be eligible for consideration for this program the following requirements must be met: (1) A student must have maintained a "B" or better average on all work pursued during three years (six semesters) of high school; (2) A minimum ACT composite score of 24 must be made and this score submitted to the

college prior to June 1; (3) The student must be recommended by the high school principal; (4) Upon earning a minimum of 24 semester hours at the college, the student will be issued a diploma by the high school last attended.

For additional information please write to: Admissions Office, Louisiana Tech University, Ruston, Louisiana 71272.

A SUMMER ENRICHMENT PROGRAM FOR HIGH SCHOOL STUDENTS (SET-Summer Enrichment at Tech) designed to enable capable high school juniors to invest the summer between their junior and senior years wisely has been in effect since 1964 with outstanding success. Special effort is exerted to choose courses that will not conflict with twelfth grade high school courses.

Grades and credits will be recorded by the Registrar but will be validated to the student's transcript only after application for validation of the credits. High school students who complete the Summer Music Camp at Louisiana Tech and who are eligible for the Summer Enrichment Program are permitted one semester hour credit of applied music. This credit will be validated on the student's transcript by the Registrar only after application for validation of the credit.

Anyone interested should write to: SET, Box 3178 T.S. Louisiana Tech University, Ruston Louisiana 71272.

ORIENTATION

Under the direction of the Division of Admissions, Basic and Career Studies, an Orientation program for all new freshmen is held each quarter preceding registration.

New Freshmen who have been accepted for the Fall Quarter are encouraged to attend one of six sessions of Summer Orientation. Each student selects courses and completes registration for the Fall Quarter, except for payment of fees. Close academic direction and personal attention are accomplished through faculty advising. A special program for parents is available in order to make the transition from high school a smooth and orderly process for students and parents.

In addition, a Mini-Orientation is held on the day preceding the beginning of each new quarter. Students are given information to assist them with registration and regulations governing their academic status.

The Orientation office extends its functions to include assistance and visitation to area high schools, as well as serving students who are visiting the Tech campus.

CREDIT BY EXAMINATION

While students are already benefiting from more rapid degree completion in Louisiana Tech University's year-round quarter system, there is also available an avenue through which the more capable student can earn degree credit.

The University subscribes to the concept that individuals possessing knowledge equivalent to that attained in a specific course should be advanced in level in order that a continuous challenge is met. There is no regard for where and how the knowledge was acquired. Certain policies and procedures have been adopted by the University in fulfillment of this philosophy. Unsuccessful attempts will not be recorded against the student. Application of credits toward a degree are determined by the student's curriculum.

The University provides for credit through Military Experience, for Advanced Placement, and for Credit by Examination as follows:

CREDITS THROUGH COLLEGE ENTRANCE EXAMINATION BOARD

A. THE ADVANCED PLACEMENT PROGRAM

The University recognizes college level courses taken in secondary schools under the College Entrance Examination

Board (CEEB) Advanced Placement Program. Students who have completed these tests should have their scores sent to the registrar.

B. THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP) Subject Examinations

A student may gain college credit in a number of subjects by scoring at the percentile level recommended by College Level Examination Program (CLEP), administered nationally by Educational Testing Service (ETS), for the College Entrance Examination Board (CEEB). The examination may be taken Wednesday of the third week of each month of Louisiana Tech University upon application to the Director of the Counseling Center or at any national CLEP center. Registration should be filed 15 working days prior to test date. Scores are provided by ETS through their transcript service. Subjects are being added annually. Lists of subject examinations available may be obtained from the Counseling Center Office, Keeney Hall 313. The student's academic dean must approve the acceptability of the credit toward a degree program.

Credit by means of this type subject examinations is limited to 30 semester hours and total degree credit by all types of examinations may not exceed 60 semester hours. Application for CLEP subject examinations may be obtained from any test center participating in the program.

LOUISIANA TECH CREDIT EXAMINATIONS

Credit examinations in many subjects are administered on the campus for the benefit of students.

Students should contact the head of the department in which he/she wishes to take the credit exam during the quarter preceding the quarter in which he/she wishes to take the exam.

Individual credit examinations may be arranged in any subject. The procedure for registering for credit by examination is as follows:

1. Students will register for credit by exam for any given course only during regular registration periods. No examination can be taken for credit unless a student has properly registered for the exam. The advisor's signature will render approval for a student to attempt the exam.

2. Exams will be given and reports submitted during the period prior to the final "drop and add" day. Regular University fees will apply.

3. Department heads will have available for the student a class card for "credit by exam" courses to be issued at registration.

4. Each credit exam will have a section number of "00".

5. The student's white registration card will reflect the "credit by exam" courses for which the student registers; these courses will not, however, be added into the total semester-hour load of the student but will be counted for the purpose of determining fees.

6. Should a student attempt an exam and fail it, there will be no entry on his/her permanent record.

7. Successful completion of credit examinations are recorded on the student's record as "credit by examination" and assigned a grade S. Grades of S are not used to compute a grade point average.

8. Credit through this type examination is limited to 30 semester hours of degree credit and credit by all types collectively may not exceed 60 semester hours.

9. Permission to take a credit examination in a given course will be denied a student in the following categories:

- a. Those who have completed the course for credit previously with an unsatisfactory grade.

- b. Those who have earned credit in a course higher in the same sequence.

ADVANCED PLACEMENT

Students interested in placement in more advanced courses based upon demonstrated aptitude and achievement are advised to consult the departmental section of the catalog dealing with the subject of interest or to consult the department head administering that subject. Advanced Placement merely allows the student to omit a specific course in order to proceed to a more advanced one. No credit is granted for the course omitted although credit may be gained by examination, and the student is required to add a more advanced course to his/her program of study in order to fulfill requirements for graduation.

MILITARY EXPERIENCE

Honorably discharged veterans of the United States Armed Forces may be allowed credit for physical education and certain other courses upon presentation of a copy of their discharge, DD 214, to the Admissions Office.

Additional credit may be granted for service schools where equivalence in terms of college courses has been recommended for college credit in the "Guide to the Evaluation of Educational Experience in the Armed Services," published by the American Council on Education. Official documents must be submitted to the Admissions Office for an evaluation of these experiences.

DEFENSE ACTIVITY FOR NON-TRADITIONAL EDUCATION SUPPORT (DANTES) COURSES

Louisiana Tech University is a participating institution with the DANTES program. Credits earned are recognized by a division of Louisiana Tech University in accordance with the recommendations of the American Council on Education. The credits must be acceptable to the curriculum in which the student enrolls and must not duplicate other college credits earned.

REGISTRATION

REGISTRATION days are announced through the medium of the University Calendar. Late registration is allowed for five regular class days following the last day of scheduled registration.

Department heads or appointed counselors act as advisors during registration but the student is expected to be acquainted with requirements for his/her particular graduation. The curricula may be found in this catalog; each student should know the chosen curriculum, and should know how to register according to its requirements.

THE SEMESTER HOUR is the unit of credit. Most courses carry a credit of three semester hours and meet three times a week for a quarter. Credit for each course is indicated by the numerical description, as 0-3-3; first number indicates laboratory contact hours per week; second, lecture periods per week (90-minute periods with break between classes included); third, credit in semester hours.

COURSE NUMBERS have been standardized, freshman courses are numbered in the 100 series and senior courses are numbered in the 400 series. In some cases, courses in the 200 series are accepted for junior-senior credit and 300 courses are accepted for graduate credit. In cases where there is a specified prerequisite of the junior course, or when the course is open to seniors only, or when it is open to seniors and graduate students only, the courses are numbered in the 400 series. Courses numbered 500 are open only to graduate students.

TO AUDIT A COURSE the applicant must be eligible to enter the University either as a regular student, as a visiting student, or as a special student. Approval from the teacher of

the course must also be obtained. A student auditing one or more classes must follow the regular registration procedure. After the approval of the teacher is obtained, the student will be assessed the appropriate general registration and tuition fee for the period audited. This fee is not refundable. The auditing student is not required to do the work of a regular student in the course, nor will credit be allowed for the course audited. An audit may not be changed to credit after registration closes. Audits are permitted only when a student's schedule affords the time.

TO REPEAT A COURSE in which a passing grade has been earned; the student must have the consent of his/her department head. All courses attempted will be recorded and computed in the overall average.

TO ADD A COURSE after the close of registration approval must be obtained from the student's college dean. No course may be added after the sixth working day of the quarter except forensics, band, choir, chorus and orchestra. These courses may be added during the first four weeks.

TO DROP A COURSE a student must be in good standing and have the consent of his/her department head or advisor. A student may be dropped from a class, or more than one class, or from the rolls of the College if his/her Dean considers such action to be in the interests of the class or the University. In such a case, the Dean will decide whether the student will be given a W or an F. The W grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The W grade is not included in computing the student's average. However, if a student resigns from school after the first six weeks, the class instructors will submit grades of W plus the student's average grade at the time of withdrawal, except if the student resigns within one week of the end of classes the grade given will be an F. These grades (W plus average) will be recorded on the student's permanent record but will be included in the computation of the average only when the student is being examined for probation or suspension for that quarter. A student who withdraws from a class after the first six weeks of a quarter will receive an F in the course.

TO CHANGE FROM ONE COLLEGE TO ANOTHER, a student must obtain the consent of the Dean of the College in which he/she desires enrollment.

EXPENSES

The printing of a catalog must begin well in advance of the date it will become available for distribution. Past experience has indicated that by the time the catalog is available for distribution, fees and other related fee policies may be changed. For this reason, the dollar costs are not included in the catalog, but are available upon request. Please request a "Fee Schedule" from:

Admissions Office
Post Office Box 5226
Louisiana Tech Station
Ruston, LA 71272

ACADEMIC REGULATIONS

GENERAL

Change of Address. At the time of registration, each quarter, a student is required to give his/her home address and telephone number, his/her University residence address and telephone number, and University mailing address. If any one of the addresses change during the quarter, the change must be immediately reported, in writing, to the registrar's office. The notice of change will be routed from the registrar's office to the Dean of Student Life.

The University will consider all correspondence mailed to a student at the address currently on file to have been received unless it is returned to the sender.

CLASSIFICATION OF STUDENTS

Freshman	1—29 hours
Sophomore	30—59 hours
Junior	60—89 hours
Senior	90 semester hours—Graduation

DEFINITION OF STUDENTS

A Regular Student is one who has satisfied all of the entrance requirements and is qualified to pursue a curriculum leading to a degree and who is pursuing one of the prescribed curricula of the University. (See A High School Graduate in the Admissions section of this bulletin and A Transfer Student listed in this section for additional information on admission to regular student status.)

A Full-Time Undergraduate Student is one taking at least 8 semester hours for the quarter.

A Part-Time Undergraduate Student is one taking less than 8 semester hours for the quarter.

A Special Student (1) has not met Tech's entrance requirements for enrollment in a degree curriculum but is a mature person and has applied to take selected courses or (2) has met the University's entrance requirements but only wishes to take certain courses rather than pursue a formal curriculum. A special student must have the approval of the Dean of the College in which he/she wishes to register.

A Visiting Student is one who has not been regularly admitted to the University and is not approved to pursue a curriculum. This admission is for a particular program. No transcripts are required for this admission. Transferable credit will be awarded. If at a future date the student wishes to regularly enroll at the University, the regular admission procedures must be followed.

A Transfer Student is one who has previously enrolled at another college or university and is presently pursuing a degree at Louisiana Tech University. Original transcripts from all previously attended institutions of higher learning are required. Transfer students will not be admitted to the University if they are under scholastic or disciplinary suspension from another institution of higher learning. No individual transfer student will be considered for admission until such interval has elapsed that had the suspension been incurred at Tech he/she would become eligible. No transfer student will be admitted to the University unless his/her academic record meets the standards required of a student of the same classification at Tech.

All institutions under the Louisiana Board of Trustees for State Colleges and Universities are required to issue transcripts for a student on scholastic probation or suspension. These transcripts are to show the effective dates of such probation or suspension. Thus Louisiana Tech cannot admit a transfer student from another college or university under control of the Board of Trustees unless a transcript is presented which satisfies the Board's regulation as specified in this paragraph.

A transfer from a non-accredited institution will not be allowed credit toward graduation on any course which was passed with the lowest passing grade, D or its equivalent. The grades, however, will be entered and counted in the computation of the earned average of C required for graduation from the University.

The maximum hours transferable from a junior college are 68. No credit from a junior college will be accepted toward a degree after the student has attained junior standing.

A Post-Baccalaureate Student holds at least one bachelor's degree but has not been admitted to the Graduate School

and is not pursuing any prescribed curriculum. A post-baccalaureate student may not take courses for graduate credit and any course taken to make up undergraduate deficiencies cannot be later transferred for graduate credit. (A student who holds a bachelor's degree and is pursuing a curriculum leading to another bachelor's degree is an undergraduate regular student and is classified as a senior.)

A Graduate Student holds at least a bachelor's degree from an accredited institution, has gained admission to the Graduate School, and is pursuing a prescribed graduate curriculum.

LOUISIANA STATEWIDE ARTICULATION

Louisiana Tech subscribes to the statewide Articulation Policy as adopted by the Board of Regents, June, 1976. The aim of this policy is to insure that transitions which students may encounter in their educational careers will be orderly and, to the extent possible, easy. A student transferring to Louisiana Tech will make initial contact with the Office of Admissions for general information and evaluation. Credits earned from regionally accredited colleges and universities will be accepted by Louisiana Tech. Credits earned from colleges and universities which are not regionally accredited will not be accepted on any course which has been passed with the lowest passing grade, D or its equivalent. The academic dean of the college offering the curriculum selected will determine which of the transferred credits will actually apply toward completing degree requirements. The transfer student will find information concerning registration, academic regulations, credit by examinations, advanced placement, and other non-traditional means of earning academic credit within the general information section of the catalog.

INTERIM COURSES

For a three semester hour course, a minimum of three calendar weeks, 45 clock hours, are required. Exceptions may be made to the weekly time limitation for undergraduate courses provided such exceptions are justified in writing, approved by a college or university committee and placed on file in the Board of Trustees' Office. A student crossing college lines within an institution to enroll in a course offered during an interim session must first secure the written permission of the Dean, or of a person designated in writing by the Dean, of the college in which the student is registered.

SEMESTER HOUR LOAD

A NORMAL STUDENT LOAD is that amount of course work required by the curriculum in which the student is registered. A graduating senior or a student having a B average (3.0) overall (and for the preceding quarter) may be permitted to carry a maximum of 14 hours during a quarter. Correspondence work pursued during these periods will be considered as a part of this load. In all cases where a student wishes to schedule in excess of 12 hours during a quarter or when a student wishes to pursue a course by correspondence, approval of his/her academic dean must be obtained. Courses pursued in excess of these limits will be invalidated upon discovery. Drive-in students and those students engaged in part-time employment should schedule proportionately fewer hours. As for minimum load, full-time students must be registered for 8 or more hours. Exception: a graduating senior may carry only the courses required for graduation at the end of the quarter.

CLASS ATTENDANCE

Louisiana Tech has adopted CLASS ATTENDANCE regulations in consonance with the policy of the Board of Trustees for State Colleges and Universities (Effective May, 1976).

Minimum Class Attendance Regulations for the Colleges and Universities under the control of the Board:

A. Class attendance is regarded as an obligation as well as a privilege, and all students are expected to attend regularly and punctually all classes in which they are enrolled. Failure to do so may jeopardize a student's scholastic standing and may lead to suspension from the college or university.

B. Each instructor shall keep a permanent attendance record for each class. These records are subject to inspection by appropriate college or university officials.

C. A student shall submit excuses for all class absences to the appropriate official(s) designated by the President within three class days after the student returns to the respective class. The appropriate official may excuse the student for being absent and the faculty member shall accept an official university excuse.

D. When a freshman or sophomore student receives excessive unexcused absences (a minimum of four) in any class, the instructor may recommend to the student's academic dean that the student be withdrawn from the rolls of that class and given an appropriate grade.

E. Faculty members are required to state in writing and explain to the student their expectations in regard to class attendance prior to the close of the drop and add period.

Policy on Emergency Situations Announced through the News Media

It is the basic expectation of Louisiana Tech University that all employees report to their duty stations at the appointed times. To aid in determination of "appointed times" this News Media Announcement Policy is promulgated. All normal situations are covered in published calendars, schedules, bulletins, policies and handbooks. Emergency situations will be announced using selected words by the Tech News Bureau, upon authorization by the President or his designee. The following interpretations will apply:

SITUATION: A. Tech is closed. INTERPRETATION: Students and most employees are not required to be on duty. Selected employees have responsibility to be on duty to maintain essential services as an inherent requirement of their employment. Compensatory time will be granted these selected employees in this case.

SITUATION: B. Classes are dismissed. All offices are open. INTERPRETATION: All employees other than 9-month teaching faculty are required to be on duty.

SITUATION: C. Tech is open. INTERPRETATION: All employees are expected to be on duty and all students are expected to be in class.

EXAMINATIONS

The term EXAMINATION is intended to include all examinations, regular and special, taken while the student is studying at Louisiana Tech. Any student who violates any of the regulations listed below may be denied credit by the University.

(1) Special examinations, including postponed examinations, must be taken within the first four weeks of the following quarter. If he/she does not re-enroll the following quarter, the deadline to take the examination still is within the first four weeks of the following quarter. If the student does not take the examination during the period specified above, the grade of F in the course will be reported by the teacher.

(2) A candidate for graduation who fails to pass the final examination in only one course in the last quarter's work may be permitted to take a deficiency examination in this course. If he/she fails the deficiency examination, the course must be repeated.

SYSTEM OF GRADING

The University's SYSTEM OF GRADING is traditional: An A is given for the highest degree of excellence that is reasonable to expect of students of exceptional ability and application. A B is superior. A C is average. A D is given for a quality of work that is considered the minimum for receiving credit for the course.

Some other grades given by the University need more explanation. An F is a failure and the work must be repeated to receive credit. The grade I plus the average letter grade on all the work completed is used to denote failure to complete assigned class work because of conditions beyond the student's control. If the grade I has not been removed by the end of the fourth week of the following quarter, a grade of F will be recorded, except on graduate research or thesis courses numbered 551, 590, and Education 580. A student may be placed on probation, continued on probation, or removed from probation at the time the I grade is cleared.

The W grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The W grade is not included in computing the student's average. However, if a student resigns from school after the first six weeks, the teacher will submit grades of W plus the student's average letter grade at the time of withdrawal, except if the student resigns within one week of the end of classes he/she will be given an F. These grades (W plus average) will be recorded on the student's permanent record but will be included in the computation of the average only when the student is being examined for probation or suspension for that quarter. A student who withdraws from a class after the first six weeks of a quarter will receive an F in the course.

Grade reports are sent, by the Registrar, to the student at his/her home address at the end of each quarter.

Quality points indicate the quality of a student's work. An A receives four quality points per semester hour; a B receives three quality points per semester hour; a C receives two quality points per semester hour; a D receives one quality point per semester hour. An F receives none. A student, wishing to increase quality points, may with the consent of the head of his/her department, repeat a course in which a passing grade has been earned. (See "Graduation Requirements" and "Scholastic Standards" for an explanation of the method by which quality points are used in determining averages for graduation and for probation and suspension.) The scholastic rating of a student (or of any group of students) is determined by the number of hours of academic work for which the student or group was registered.

FINAL GRADE APPEALS PROCEDURE

A final grade in a course represents the cumulative evaluation and judgment of the faculty member the university has placed in charge of that course. If a student feels the final grade in a course was not determined in accordance with university policies or was determined arbitrarily, the student may appeal the grade by following this procedure.

(1) Confer with the faculty member, setting forth clearly all points of concern. If unsatisfied with the results of the conference, then

(2) Confer with the head of the department in which the course is taught, setting forth clearly all points of concern. If the student remains unsatisfied, then

(3) Write a letter of appeal to the dean of the college in which the course is taught. The dean will send copies of the letter to the faculty member and department head. This letter must: (a) be received by the dean within the first ten (10) regularly scheduled class meeting days of the term immediately following the term in which the appealed grade was received and (b) be an accurate and complete statement of all facts

pertaining to the matter. Falsification may result in the disciplinary action.

The dean may make a decision, which would be final in the matter, or refer the appeal to the college's committee on standards for review and recommendation. The committee's report would be a recommendation to the dean, whose decision would be final.

In reviewing grade appeals both the dean and committee would have broad latitude in their procedures and recommendations. They might, for example, request additional information privately from those involved. Or they might choose to invite specified persons, including the student and faculty member, to a meeting to discuss the matter. Whatever their approach, it should take appropriate account of the interests of both the student and faculty member.

In all cases the dean shall communicate the final grade to the student, faculty member, department head, and, if a grade change is involved, to the registrar. In appeals where the dean initially makes the decision, the decision should normally be communicated within ten (10) class days after the appeal deadline. When appeals are referred to the committee, the final decision should normally be communicated by the dean within twenty (20) class days after the appeal deadline. In all cases the final decision must be made and communicated by the last day of classes of the term in which the appeal was filed.

ACADEMIC ACHIEVEMENT

HONOR FOR ACADEMIC ACHIEVEMENT of an undergraduate student receiving his/her first baccalaureate degree shall be recognized by the University. The student is honored at graduation by a suitable inscription on the diploma and by recognition by his/her Dean. The following conditions determine such recognition: (A) An average on all hours attempted of 3.30 for cum laude, 3.55 for magna cum laude, and 3.80 for summa cum laude; (B) the student must have earned at Louisiana Tech University a total of 30 semester hours.

The PRESIDENT'S HONOR LIST was inaugurated for undergraduate students effective with the Fall Quarter, 1968, with the requirements for membership set at a grade point of 3.8, on a minimum of ten hours' work completed and no grade lower than a C.

The DEAN'S HONOR LISTS are prepared at the end of each quarter. Students whose names are on the lists must be regularly enrolled undergraduates with an average of at least 3.5 with a minimum of ten hours completed and with no grade of F. The Dean of each College determines the students who will be honored on these lists.

TRANSCRIPT

A TRANSCRIPT of work completed by a student at Tech will be furnished within three days following a request for this record, provided the student is not indebted to any department of the University. For each transcript, a fee of \$2.00 is charged. A signed request for a transcript is required with fee payment upon request. No transcripts are issued during the first ten days of any quarter.

SCHOLASTIC STANDARDS

SCHOLASTIC PROBATION, SUSPENSION, AND READMISSION are determined by the following regulations:

(1) A full- or part-time student who does not make a D average (1.0) on all hours attempted during a quarter will be dismissed for one quarter except a freshman student, who during his/her first two quarters will be placed on probation.

(2) A full- or part-time student who makes an average ranging from 1.0 to 1.5 on all hours attempted during a quarter will be placed on probation.

(3) A student on probation will be given one quarter to make a C average (2.0) on all hours attempted during that quarter which will remove him/her from probation; if he/she does not make a 2.0 average, he/she will be dismissed for one quarter.

(4) After the lapse of one quarter, a student may re-enter the University on probation, but he/she must make a C average (2.0) on all hours attempted during the quarter or he/she will be dismissed again.

(5) A student who resigns after six weeks of a quarter will receive at the time of withdrawal grades of W and the grade he/she was making at the time of withdrawal. These grades will be used to compute his/her academic status.

(6) A student dismissed (from Louisiana Tech University) at the end of the spring quarter may attend the summer quarter, but he/she must remain out during the fall quarter. Grades earned during a summer quarter (at Louisiana Tech University) do not change the probational or dismissal status of a student.

(7) A student, after having been dismissed the fourth time may be allowed to appeal his/her case for readmittance for one more and final time, provided there has been a lapse of a reasonable period of time since the fourth dismissal.

(8) A student under suspension for scholastic reasons may not obtain credit toward a degree on credits earned at another institution during the period when he/she is ineligible to register in an institution under the jurisdiction of the Board of Trustees for State Colleges and Universities.

READMISSION AFTER SUSPENSION is permissible under the following circumstances:

(A) Any student suspended for scholastic deficiencies may not re-enroll until the expiration of one quarter. Upon readmission after suspension, he/she will be placed on probation and required to meet academic standards required of all probationary students. If a student has been suspended for scholastic deficiencies the third time and fails to earn a C average on all work attempted during a quarter following readmission, he/she will be temporarily removed from the rolls of any institution under the jurisdiction of the State Board of Trustees until the lapse of a reasonable period of time.

(B) A student under suspension for scholastic reasons will be on probation upon return to the University.

APPEAL of decisions concerning suspension may be made to the student's respective academic dean.

ACADEMIC MISCONDUCT at the University is determined by the faculty member under whom such misconduct occurs. The penalty for cheating and other forms of misconduct is also determined by the faculty member. This penalty may be an F in the course, but lesser penalties may be given at the discretion of the faculty member.

WITHDRAWALS

Any student who wishes TO WITHDRAW FROM THE UNIVERSITY for any reason must process a resignation with the registrar and the academic and personnel deans prior to the withdrawal. A grade of F for each course will be entered on the record of any student who leaves without proper resignation. A student living in the dormitories or housing who leaves without proper withdrawal will forfeit the unused portion of any payment or deposit made to the University.

GRADUATION REQUIREMENTS

GRADUATION REQUIREMENTS at the University are traditional, but the student should be thoroughly familiar with the following regulations if he/she is to become a candidate for a degree:

Associate Degree Requirements:

The Associate of Arts or Science degree can be earned from Louisiana Tech University when a student has fulfilled the following requirements:

1. The candidate must complete one of the approved two-year programs consisting of 60 or more specified academic credit hours in the Basic and Career Studies Division.

2. He/she must make a C average on hours earned. If a student is short on hours earned at the beginning of the final quarter or is more than six quality points of a C average he/she will not be allowed to register for graduation. A transfer student must also make a C average on all hours earned at the University.

3. If the student is a transfer he/she must not have less than 24 weeks in residence at Louisiana Tech, during which at least 15 hours and 30 quality points, has been earned.

4. The last two quarters must be spent in residence. Exception: a student who has fulfilled the minimum residence requirements may be permitted to earn six of the last 18 hours out of residence.

5. He/she must report his/her candidacy to his/her dean and the registrar and register for graduation within the first four weeks of the quarter in which he/she expects to graduate.

6. One-fourth of the hours required for graduation must be completed in residence. Louisiana Tech does not permit a student to apply for more than six hours of correspondence study toward the pursuit of a degree.

7. The student must be present for commencement. If a candidate absents himself/herself from commencement without the approval of the president of the University, an absentee fee of \$10.00 will be assessed. An additional \$3.00 Special handling fee for mailing of the diploma will be charged each person who does not pick up the diploma at graduation when it is normally available.

8. The student must be registered at Louisiana Tech University.

9. It is highly recommended that the candidate register in the Placement Office during the quarter preceding the one in which he/she expects to graduate.

10. If a student wishes to earn a baccalaureate degree from the University he/she must re-apply for a baccalaureate program and meet all additional requirements as explained in each specific curriculum.

Baccalaureate Degree Requirements:

1. The candidate must complete one of the curricula of the six colleges.

2. A C average on hours earned is required. A student who is short on an hours earned basis of more than nine quality points of a C average will not be allowed to register for graduation. A transfer student must also make a C average on all hours earned at the University.

3. If he/she is a transfer student, not less than 36 weeks residence at Louisiana Tech, is required during which at least 30 semester hours and 60 quality points are earned.

4. He/she must spend the senior year in residence. Exception: a student who has fulfilled the minimum residence requirements may be permitted to earn nine of the last 36 semester hours out of residence.

5. The student must report his/her candidacy to his/her Dean and to the Registrar within the first four weeks of the quarter in which he/she expects to graduate.

6. Three-fourths of the hours required for graduation must have been completed in residence. Louisiana Tech does not permit a student to apply for more than six hours of correspondence study toward the pursuit of a degree.

7. The student must be present for commencement. If a candidate is absent from commencement without the approval of the President of the University, an absentee fee of \$10.00 will be assessed and an additional \$3.00 Special handling fee for mailing will be charged each person who does not pick up the diploma at graduation when it is normally available.

8. The student must be registered at Louisiana Tech University.

9. It is highly recommended that the candidate register in the Placement Office during the quarter preceding the one in which he/she expects to graduate.

10. If the student wishes to earn a second baccalaureate degree in another field of study at the University, at least 30 semester hours in addition to the number required for the first degree must be earned.

Graduate Degree Requirements:

For specific degree requirements see the Graduate School Section of the catalog.

DIVISION OF STUDENT AFFAIRS

The Division of Student Affairs is organized for the purpose of assisting students to determine self direction and personal goals, and to encourage development of skills for the satisfactory attainment of those goals. For this purpose the services of the division are many and varied with emphasis on the individual student.

Thus, any prospective Tech student should become familiar with the services of the Division of Student Affairs: housing for all students; counseling center; placement and alumni services; intramural program; commuter's lounge; vehicle registration; student conduct; student activities and student organizations.

"Visiting" students (see Inter-Institutional Cooperative Programs, page 26) will receive services from the Division of Student Affairs in the home institution, the institution where admissions requirements have been met and degree programs are being pursued.

NOTICE: The regulations contained in this bulletin are based upon present and foreseen conditions and the University reserves the right to modify any statement in accordance with unforeseen conditions.

HOUSING

The Board of Trustees for State Colleges and Universities, State of Louisiana has adopted resolutions affecting the housing policy at Louisiana Tech University and all of the other colleges and universities under its jurisdiction. In compliance with the Board of Trustees resolutions, Louisiana Tech has adopted the following on-campus residency requirement: **ALL UNMARRIED FULL-TIME UNDERGRADUATE STUDENTS, REGARDLESS OF AGE OR WHETHER OR NOT EMANCIPATED, EXCEPT THOSE LIVING WITH PARENTS, ARE REQUIRED TO LIVE IN ON-CAMPUS RESIDENCE HALLS AS LONG AS SPACE IS AVAILABLE.**

The resolutions further define the on-campus residency requirement to include a framework within which the colleges and universities may grant exemptions to the general regulation according to the unique academic character, academic traditions, objectives and special qualities of each institution, keeping in mind the total objectives of higher education in the State of Louisiana. The philosophy of higher education in the State of Louisiana includes, in addition to the basic and primary educational pursuits, additional enrichment afforded by

student life facilities and programs, all of which form an integral part of the total educational experience of the student.

In order to be fair and consistent in granting exemptions from the on-campus residency requirement, **ALL UNMARRIED FULL-TIME UNDERGRADUATE STUDENTS, REGARDLESS OF AGE OR WHETHER OR NOT EMANCIPATED, EXCEPT THOSE LIVING WITH PARENTS WILL BE REQUIRED TO MAKE APPLICATION IF THEY WISH TO BE CONSIDERED FOR AN EXEMPTION.**

Applications for exemption to the on-campus residence requirement must be made in writing to the Vice President for Student Affairs no later than two (2) weeks prior to the opening of the quarter. The student will be notified in writing by the Vice President for Student Affairs of the decision rendered by the Committee. (Forms are available in the office of the Vice President for Student Affairs.) Any student who has applied for and been denied an exemption to the on-campus residence requirement shall have the right to appeal such decision of Proper Officials in accordance with the provisions and administrative procedures for appeal authorized and established pursuant to the authority of Act 59 of 1969 (L.R.S. 17:3101) and the rules of procedure of the State Board supplemental thereto.

Exemptions to the requirement of on-campus residence hall living may be made according to the following priority:

1. First, undergraduate students who wish to live with a close relative, defined as grandparents, married brother or married sister.

2. Second, undergraduate students who wish to live in social fraternity houses.

3. Third, Seniors.

4. Fourth, Juniors.

5. Fifth, Sophomores.

6. Sixth, Freshmen.

Within each of the foregoing classifications, the following additional rules of priority shall be applied:

1. First, students who have resided in off-campus housing the longest period of time.

2. Second, date application was received.

In addition, an exemption may be applied for in a hardship case or by older student.

DEFINITIONS: The following words and phrases, in the absence of clearer indications, will be given the following interpretations:

"Living with parent" means any place of abode owned, rented or leased and OCCUPIED by the parent.

"Living with close relatives" means any place of abode owned, rented or leased and OCCUPIED by the grandparent, married brother or married sister.

"Living in social fraternity houses" means living in any house owned, rented or leased by a University chartered social fraternity.

"Senior" means an undergraduate student who has earned a minimum of 90 semester hours and 180 quality points.

"Junior" means an undergraduate student who has earned a minimum of 60 semester hours and 120 quality points.

"Sophomore" means an undergraduate student who has earned a minimum of 30 semester hours and 60 quality points.

"Freshman" means an undergraduate student who has not yet earned 30 semester hours and 60 quality points of college credit.

"Students who have resided in off-campus housing for the longest period of time" means the student who has lived off campus for the most quarters, other than with parents.

"Date application was received" means recording the date the applications for exemption are received in the office of the Vice President for Student Affairs. (Letters received on the same date will place individuals on the list in an alphabetical order.)

"Hardship case" means a person who will suffer significant hardship because of valid financial, medical, or other good and sound reasons. (Special diets are available in on-campus dining facilities.)

"Older student" means a person where a determination of fact that such individual is, by virtue of age and experience, incompatible with the residence hall age group.

Students found violating the policy as stated in the above paragraphs under the heading "HOUSING," will be required to move into the residence hall system and pay full room rent and associated fees for the quarter in which the violation occurred. Should the student refuse to move into the residence hall and pay the rent, the student will be referred to the Behavioral Standards Committee.

RESIDENCE HALL RESERVATIONS

Room reservation contracts may be secured at the office of the Director of Housing. Applications for residence hall reservations will be accepted beginning October 1 of each year for the following Winter, Spring, Summer, and Fall quarters. Reservation contracts will not be confirmed until the following have been submitted to the Housing Office of the University: (1) Completed residence hall reservation contract with picture of applicant attached, and (2) a \$50.00 reservation deposit. (All residence hall students are required to pay for room and meals.)

RESIDENCE HALL ACCOMMODATIONS

Specific room assignments for new Tech students are made according to the date the completed residence hall room contracts for the student and his/her roommate requests, if any, are received. Returning students presently living in the residence halls are assigned on a first-come basis, at a time set aside for this during a quarter.

TERMS UNDER WHICH RESIDENCE HALL ROOMS ARE CONTRACTED

The University reserves all rights in connection with room assignments or termination of their occupancy. Occupants of residence hall rooms are held liable for damage to the University property within the room, the building, and all other University property they use or to which they have access.

The reservation deposit will be refunded upon request not later than 45 days before the beginning date (date specified in catalog) of the quarter for which reservation was made. Failure to cancel a reservation before the 45-day period or failure to claim the room by 5:00 p.m. the day before late registration begins will cause forfeiture of reservation deposit.

The student who does not plan to return to the residence hall the next quarter must claim the deposit by the close of the present quarter. If the student is leaving the residence hall and wishes to leave the deposit on file in order to return to the residence hall at a later date, he/she must fill out a reservation card in the Housing Office by the close of the present quarter, stating the date he/she wishes to return. If the student does neither, the deposit will be forfeited.

The student who is suspended from the University for academic reasons will be given 30 days from the beginning of the first quarter immediately following the quarter in which the suspension occurred to request a refund of the deposit or fill

out a new reservation card in the Housing Office stating the date he/she plans to return. If the student does neither, the deposit will be forfeited.

The student who leaves the residence hall system under authorization of the University, and in compliance with University rules and regulations, and remains in school will forfeit the unexpended portion of room payment (rent) for the quarter. The \$50.00 reservation deposit, less any charges for damages, will be refunded upon the proper conclusion of the use of the room and completion of an official check-out from the residence hall system. "Official check-out" and "conclusion of the use of a room" are defined as having moved all personal effects out of the room and completely processed a check-out slip through the Housing Office and processed a move-out form through the Comptroller's Office. A student is considered living in the residence hall room until he/she has officially checked out of the residence hall system, concluded the use of the room, and completed the processing of the move-out form with the Comptroller's Office. A student will continue to pay for room rent and meals until all official check-out procedures are completed. The student may continue to use the food service, if so desired. To do so, the student must notify the cashier in the Comptroller's Office of this decision when processing the move-out form. If the student does not wish to continue using the food service, the unexpended portion of payment for the pay period involved will be forfeited.

The student whose relationship with Louisiana Tech is severed (for whatever reason) during a quarter or term of enrollment will forfeit the reservation deposit and pay for (1) the services rendered the student in the residence hall and food service on a daily basis, and (2) any charges placed against the student's matriculation such as library fines, breakage, etc. The balance of funds prepaid by the student for these services will be refunded.

All penalties and charges incurred during a quarter must be paid at the cashier's window in the Comptroller's Office before the end of the quarter that charge (s) was incurred, or charges will be held against the student's record and the student cannot register.

Refrigerators may be rented by residence hall students from Louisiana Tech Housing Office at a rate of \$15.00 per quarter with special rates if rented for more than two quarters.

CHANGE OF ROOM RENT RATES MAY OCCUR WITHOUT NOTICE

MARRIED STUDENT HOUSING

The University owns 42 apartments located on the campus of the College of Life Sciences, approximately a mile from the main campus off U.S. Highway 80 West.

Applications for Married Student Housing are available from the Housing Office, Louisiana Tech University, Ruston, LA, 71272. These applications must be accompanied by a \$50.00 damage deposit and will be handled on a first-come, first-served basis. The deposit will be refunded when the apartment is vacated if there has been no damage to the apartment and the contact agreements are fulfilled. No assignments can be made until the \$50.00 deposit is received. If the applicant wishes to reject the assignment, it must be done 45 days before the quarter begins (date specified in catalog) or he/she will forfeit the deposit. Rent is as follows: One hundred and sixty-five (\$165.00) per month payable in advance, plus cost of electrical power; the first rent payment being due the date the key to the apartment is issued. Payments thereafter are due on the first of each calendar month. Students are expected to accept the responsibility of making payments promptly; therefore, the school will not send a statement to the student of a payment due. Failure to pay in advance subjects the student

to these penalties: Dismissal from the apartment, the University, or both. Non-students are not eligible to live in University owned apartments. Except for a heater, these apartments are unfurnished.

CHANGE OF APARTMENT RENT MAY OCCUR WITHOUT NOTICE

INTERNATIONAL STUDENTS

International students are welcomed at Louisiana Tech University. Those interested in attending should request application materials through the Admissions Office.

The International Student Counselor is available to assist the international in becoming acclimated to the new surroundings, to provide personal counseling, to acquaint the student with the culture of his new community, and to be a referral source for problems he may encounter. The International Student Counselor is also available to answer questions concerning immigration laws which affect international students.

The Office of the International Student Counselor is located on the third floor of Keeny Hall.

FIRST AID CENTER

A First Aid Center is maintained by the University for use by all students. A Registered Nurse is on duty during the school day, Monday through Friday, during official school sessions. First aid services, within the limits of personnel and supplies which can be maintained in the Center, are provided to students at no charge other than the fee during registration. Medical expenses for services incurred outside the Center are the responsibility of the student.

ACCIDENT AND HOSPITALIZATION INSURANCE

Accident and hospitalization insurance including a \$25.00 maximum emergency room sickness coverage is provided to students through the Student Government Association by self-assessment paid at the time of registration. Details are provided in a flyer distributed at registration by SGA.

COUNSELING CENTER SERVICES

The Counseling Center exists as a personnel service to the students of the University. The Center believes in the worth, dignity, and potentiality of each individual and strives to help young people become aware of these qualities within themselves. The Center endeavors to aid students in gaining more of the insight, learnings, and skills needed to cope intelligently and effectively with each phase of their lives. Counselors assist students in three major areas: PERSONAL COUNSELING, EDUCATIONAL COUNSELING, AND CAREER COUNSELING. These areas include such concerns as personal emotional adjustments, health, dating, marriage, home relationships, social relations, adjustments to college work, study skills, and plans for the future. Counseling is done in an atmosphere in which students may discuss problems freely and confidentially. The Center is located in 313 Keeny Hall.

PLACEMENT AND ALUMNI SERVICES

Placement and Alumni Services are provided to supplement and coordinate the programs of the various academic deans. Degree candidates provide data on their qualifications and occupational preferences so that they may be given help in securing the employment for which they are best equipped.

Academic achievements and evaluations provided by faculty references are added to a confidential, cumulative file. The Placement Office also arranges interviews and acquaints students with various employment opportunities.

VEHICLE REGISTRATION

The University requires all faculty, staff, students and employees who are in any way connected with the school to register their vehicle or vehicles regardless of ownership and to secure and properly display a parking permit. All vehicles must be registered by the time classes begin for any quarter. Also, vehicles that are purchased or acquired during the quarter must be registered before parking on the campus.

Vehicles may be registered and decals obtained in the Campus Police Office, located in Tolliver Hall, during regular office hours.

Each registrant will need to present a valid driver's license and vehicle registration certificate. (Additional information may be found in the pamphlet "Louisiana Tech Vehicle Regulations.")

STUDENT CONDUCT

Generally speaking, students at Louisiana Tech are expected to conduct themselves in a manner that will not bring discredit but honor to themselves and the institution. Minimal standards of conduct are set out in the pamphlet entitled "Code of Student Rights, Responsibilities, and Behavior." Each student is required to become acquainted with the contents of this pamphlet.

A student under suspension or expulsion for non-academic reasons may not obtain credit toward a degree on credits earned at another institution during the period of ineligibility to register at Louisiana Tech.

STUDENT ACTIVITIES AND ORGANIZATIONS

Student activities and organizations are so numerous and diverse that it is impossible to list them here. University students are encouraged to find time for extra-curricular activities because they encompass a development toward a balanced maturity. The faculty advises and assists in these activities.

A Handbook for Student Organizations is provided each organization. Copies may be obtained in the office of the Dean of Student Life.

STUDENT FINANCIAL AID

Louisiana Tech provides equal educational opportunities for all students and this policy of equal opportunity is fully implemented in all programs of financial aid available to assist students to obtain an education at Louisiana Tech.

An extensive Financial Aid program encompassing employment, loans, grants, and scholarships is available to assist deserving students. Need, skills, and academic performance are carefully weighed to develop a "package" aid program for each individual.

Employment is available in a wide variety of forms to the student who is willing to work. Work in clerical capacities, maintenance, food service, laboratories, library, dormitories, and other areas provides educational and training opportunities as well as profitable remuneration. Pay rates are commensurate with the skill and experience required. Work is limited to avoid interference with academic pursuits. The University participates in the College Work-Study Program designed to assist students with a need for financial assistance.

The student is advised to make inquiries at the Office of Student Financial Aid in person or by writing to the office at Tech Station, Ruston, Louisiana 71272.

Students must meet the requirements for "satisfactory progress" in order to be eligible for participation in the federally-supported programs of student financial aid at Louisiana Tech University. Questions pertaining to what constitutes "satisfactory progress" should be directed to the student financial aid office at Louisiana Tech. The criteria for "good standing" and "satisfactory progress" and the consequences of failure to meet them successfully are applicable to the financial aid programs in a different fashion from regulations governing academic probation and suspension. Federal regulations frequently mandate amendments to established policies; consequently, financial aid participants (and potential participants) would be well-advised to maintain close liaison with the financial aid office regarding these requirements.

Loans of the following types are available to eligible students:

NATIONAL DIRECT STUDENT LOAN PROGRAM —

These are loans of a long term nature, with a legal maximum that an undergraduate student may borrow up to a maximum of \$6,000 for an undergraduate career. A graduate student may borrow up to an aggregate for all years of \$12,000. A borrower has a six-month "period of grace" after he/she ceases to be enrolled as at least a half-time student in the University before payment must begin.

GUARANTEED STUDENT LOAN PROGRAM — The State of Louisiana guarantees loans for students who meet certain academic qualifications. Loans are made up to \$2,500 for the academic year for undergraduates and \$5,000 for graduate students.

After a student's application has been processed by the office of Student Financial Aid, the student then negotiates with a bank, credit union or savings and loan association in their home town area. If the lender agrees to participate, the loan is guaranteed by the Governor's Special Commission on Education Services. Interest charges to the student and repayments begin after the student leaves school either upon graduation or for some other reason, or when the student is no longer at least a half-time student.

Students from states other than Louisiana should check with the same types of agencies and offices for information on the Guaranteed Loan Program available in their particular state. In some states this program will be available through a state agency similar to the Governor's Special Commission on Education Services and in others it will be available through the Federally Insured Student Loan Program.

To apply, a student should contact the Financial Aid Office at Louisiana Tech for the Governor's Special Commission on Education Services loan application form. Out-of-state students should contact the guarantee agency in their state or the lending institution from which they will seek the loan for the appropriate application which should then be submitted to the Financial Aid Office at Louisiana Tech.

Grants available include:

VOCATIONAL REHABILITATION GRANTS —

Vocational Rehabilitation is a public service program for physically and mentally handicapped individuals. To be eligible, a person must have a permanent disability which constitutes a job handicap. The disability may be of varying degrees, it may affect only a part or parts of the applicant's body and it may have come about at birth or at any time during the applicant's life. Students with disabilities are advised to contact the Department of Vocational Rehabilitation in their districts for a consideration of their cases.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY

GRANT — This grant is a federal aid program that provides assistance for students with financial need. The grants may not exceed \$2,000. Grants are available to any undergraduate student with financial need who is attending at least half-time and progressing normally toward a degree to the extent that funds are available. They are not restricted to students who are expected to, or who actually do, maintain strong academic averages.

BASIC EDUCATIONAL OPPORTUNITY GRANT — (Now renamed Pell Grants)

Authorized under the 1972 Higher Education Act this program provides for grants to students for each of a student's undergraduate years. Applications are available through high school counselors and college financial aid offices.

LOUISIANA STATE STUDENT INCENTIVE GRANT

PROGRAM — This program is a joint effort of the federal government and the State of Louisiana. The grants are available to persons who are bona fide residents of Louisiana and U.S. citizens. Awards will be made only to full time students who meet the academic requirements and who have substantial financial need. Applicants must present the Report received from the Pell Grant Program office to be considered for this grant program. Current regulations provide for annual awards ranging from \$200 to \$1800.

Scholarships are quite limited in number. They divide into categories.

(1) Academic Scholarships which are awarded on the basis of demonstrated ability—usually without regard to need. Typifying these are State Board of Trustees Academic Scholarships, Greater Tech Foundation Scholarships, T. H. Harris Scholarships, and Engineering Foundation Scholarships.

(2) Grant-in-aid and Service Awards. Frequently these are awarded on the basis of special skills and require the student to render a service to the University. Included in this category are scholarships in athletics, music, band, and some academic department awards.

(3) The Air Force Reserve Officer's Training Corps program offers a number of competitive scholarships to both men and women participants. These include payment of all tuition and fees, a per quarter allowance for textbooks, and a \$100 per month tax free cash allowance.

VETERANS' ORPHANS SCHOLARSHIPS — Awarded to sons and daughters of deceased war veterans. Apply to the Department of Veterans' Affairs in your district.

GRADUATE RESIDENTSHIPS

Graduate Residentships are positions appointed by the Director of Housing for graduate students serving as hall directors in both men's and women's residence halls. Applicants may be married or single. Thirteen positions are available to qualified graduate students without regard to curriculum. Remuneration for the Graduate Residentship includes approximately \$5,325 for the nine-month academic year, furnished apartment at a nominal fee, paid utilities, and waiver of the non-resident fee. There are limited positions available for summer. The applicant must be enrolled in the School of Graduate Studies and agree to register for not more than 6 hours of course work each quarter. Responsibilities include residence hall staff supervision program implementation, and coordination of hall administration. Additional information and application forms can be obtained from the Department of Housing, Louisiana Tech.

Auxiliary Programs and Facilities

ADVANCED LEARNING CENTER

This Center was organized in 1976 to assist academic departments in the development and implementation of instructional materials on the computer. These materials touch all segments of the campus from classroom presentations in elementary education to analysis of laboratory data in physics and engineering.

The Advanced Learning Center supports the goal of improving computer knowledge throughout the campus. Thus it promotes computer usage in nonscientific areas as well as the traditionally heavy user groups. In many cases the student accesses the computer by dialing up the campus computer center from terminals located in the departments. In short, the activities are designed for maximum student convenience with emphasis on enjoyable learning.

ATHLETICS

A member of the National Collegiate Athletic Association since 1951, the University is also a member of the Southland Conference which it joined at the beginning of the 1971-72 year. Tech competes in twelve different sports including football, basketball, baseball, outdoor track, indoor track, cross country, golf, rifle, soccer, volleyball, powerlifting and tennis. women's athletic program includes varsity basketball, tennis and softball.

The University's first priority in athletics is to produce a well-rounded program with excellence in all areas. Beginning with the 1975-76 school year Tech acquired full Division 1 (major college) status in all sports.

Eligibility for intercollegiate competitors in the men's sports is determined by the rules and regulations established by the conference, the NCAA and by the State of Louisiana. The women's sports are governed by the rules and regulations of the AIAW.

Tech is especially proud of its athletic complex which includes a 22,500-seat football stadium, 9-lane lighted tartan track, 10 lighted tennis courts, a 2,500-seat lighted baseball stadium, and a 5,000-seat basketball facility soon to be replaced by the 16 million dollar Tech Assembly Center currently under construction.

BARKSDALE PROGRAM

Louisiana Tech has offered an on-base degree program at Barksdale Air Force Base since September 1965. The program is designed for Air Force personnel whose military assignments make it impractical for them to earn college credit and complete a degree program in the traditional manner. On-base offices are maintained in the Base Education Center.

Sufficient courses are offered at Barksdale for a student to earn the Associate of Arts or Bachelor of Arts degree in General Studies with a choice of concentration in eleven different areas. The Master of Arts degree may be earned in Counseling and Guidance and in Human Relations and Supervision. The Master of Business Administration may be earned with a specialty in either Finance or Management. The Education Specialists degree in Counseling is also offered.

CONTINUING EDUCATION

Tech has for many years been active in sponsoring continuing education programs; these programs are offered in most fields of study. Year round, the institution attracts thousands of persons for events such as short courses, seminars, workshops, conferences, lectures, institutes, and other educational programs sponsored by the Division of Continuing Education.

The Continuing Education Center, located in the Wyly Tower of Learning, provides several classrooms, office space, a large auditorium, and modern audio-visual equipment which are reserved especially for use in continuing education activities.

THE COOPERATIVE PROGRAM

The College of Engineering, in cooperation with certain industrial firms, provides for a program of alternate periods of work and university study for students in engineering. In addition to furnishing talent to industry, the cooperative program provides an outstanding method for integrating technical and practical industrial experience.

Cooperative arrangements are under development by the College of Home Economics to provide intern or work experience in community, school and hospital food services. Similarly, training programs have been developed for experience in metropolitan fashion merchandising.

The College of Life Sciences sponsors a cooperative work experience program with various agricultural businesses and agencies throughout the United States. Participating students are given the opportunity to apply the knowledge and skills they have acquired in college under practical world-of-work conditions.

INTER-INSTITUTIONAL COOPERATIVE PROGRAMS

Louisiana Tech University and Grambling University entered into a cooperative program, the Inter-Institutional Cooperative Program (ICP) effective the Fall of 1969. This program facilitates free student exchange between the two institutions, making it possible for students to enroll for courses at both schools. Faculty exchange between the two institutions is also a part of the program.

Application for courses to be taken on the cooperating campuses must be made at the institution where admissions requirements have been met and degree programs are being pursued. Credits gained as a "visiting" student apply toward a degree at home or matriculation school. The student's divisional dean or authorized representative must approve the course or courses selected and the course load. A copy of the student's report card bearing the official seal will be furnished the home institution at reporting time by the visited institution.

In 1971, Louisiana Tech University and Northwestern State University entered into a cooperative program whereby a student may complete at Louisiana Tech a portion of the course requirements for the Doctor of Education degree at Northwestern State University. This inter-institutional program is limited to the fields of elementary education and secondary education. For further information, contact the Graduate Director in the College of Education.

Effective October, 1971, Northwestern State University and Louisiana Tech University agreed to participate in an inter-institutional program for the Bachelor of Science Degree in Nursing. Students may enroll at Louisiana Tech University and follow the Northwestern State University program of studies prescribed for nursing majors. When the prerequisites are complete, said students may transfer to Northwestern State University to complete the requirements for the baccalaureate degree in nursing. For further information, contact the Director of the Division of Nursing.

LOUISIANA TECH ASTRONOMY FACILITIES

The astronomy facilities of Louisiana Tech are used for classroom and laboratory instruction and also for instructional demonstrations to visiting school groups and interested public groups. The facilities at the present time include a Planetarium on the main campus and an Observatory at the Research Park located about eight miles west of the main campus.

The Planetarium seats 120 people under its 40-foot diameter dome. A modern Spitz A4-type instrument projects the sun, moon, and planets as well as about 3,000 visible stars, giving a correct and realistic simulation of the celestial view. The apparent motion of the heavenly bodies is properly synchronized mechanically while speed and intensity are controlled by modern solid state electrical circuitry.

Through the efforts of the Astronomy Committee, a modern astronomical observatory facility has been erected in a remote area eight miles west of the main campus at the University's Research Park. The facility houses a twelve and one-half inch, equatorially mounted cross-axis reflecting telescope designed to permit visual observation of all points in the celestial hemisphere from a conveniently located stationary eyepiece. The instrument is adaptable to extended time photography of deep sky objects and can be arranged for spectrographic studies by the reflection of the coude beam to the floor level through the hollow equatorial axis.

These facilities have extended the effectiveness of instruction in the astronomy courses and are expected to aid greatly in the pursuit of space age and related areas of science.

LOUISIANA TECH COMPUTING CENTER

The Louisiana Tech Computing Center, an entity organizationally separate from the academic and administrative departments, provides computing facilities and services to the entire campus community.

Since its inception in 1957, the Computing Center has grown and kept pace with the advances in Computer Science and electronic data processing. In maintaining the capability of the Center to serve the needs of the University, every effort has been made to keep current with the latest computer equipment and techniques. The principal computer system in the Center is an IBM System 370, Model 158 with 5,000,000 bytes of core storage, eight magnetic disks, two magnetic tapes, two high speed printers, and optical page reader, and a reader punch. This computer is operated 24 hours a day 7 days a week on a closed-shop basis to process programs for undergraduate and graduate instruction, graduate student and faculty research, and all University administrative data processing. Remote job entry terminals and interactive terminals are connected to the central computer system to enhance utilization by the academic and administrative users.

The Computing Center maintains a highly qualified and capable staff whose primary function is to be of assistance and service to the Center users. Professional staff members teach

courses in programming languages and are available to consult with students and faculty in their needs for computer services and assistance. These efforts are coordinated with the various curricula on campus in which computer programming is taught and in advanced courses which use computers in the solution of problems and in research.

LOUISIANA TECH CONCERT ASSOCIATION

This unique organization provides a program of well known entertainers, as well as prominent ballet, music and drama groups.

LOUISIANA TECH NUCLEAR CENTER

The Nuclear Center is a centralized facility to promote and control the use of radiation and radioactive material on the Louisiana Tech campus. Its laboratories, equipment and supplies are available to all departments to conduct classes or research projects. In addition, the Nuclear Center staff is available for consultation on the design of experiments involving radioactive material or radiation produced by machines. At present, regularly scheduled courses are available in chemistry, physics, medical technology, zoology, and chemical engineering.

Operation of the Center is in accordance with licenses issued to Louisiana Tech by the Louisiana Board of Nuclear Energy, Division of Radiation Control. The Nuclear Center encompasses a radioisotopes laboratory with student and research counting stations, a radioisotope equipment and storage room, office space, a radiochemical laboratory equipped to handle radioisotopes in many forms, a subcritical nuclear reactor designed and built by the Curtiss-Wright Corporation, a gamma irradiation facility, and an electron microscope facility. The gamma irradiation facility contains over 15,000 curies of Cobalt 60 and is capable of supporting numerous projects requiring high doses of radiation. A loan of 5000 pounds of natural uranium metal from the U.S. Nuclear Regulatory Commission completed the subcritical reactor facility.

In the past, the Nuclear Center has been utilized for special instruction to students attending summer institutes sponsored by National Science Foundation, for research work, for radioactive fallout work, and for regularly scheduled classes. Equipment grants from the U.S. Nuclear Regulatory Commission have provided additional specialized instrumentation and equipment for use by the Zoology Department, the Nuclear Center, and the Department of Chemistry. The Louisiana Tech Nuclear Center is fulfilling its obligation to provide nuclear training to the students of this area, and in addition, is aiding in Civil Defense planning and radioactive fallout contamination reporting. Contract research and special institutes are included in the responsibilities of the Nuclear Center.

LOUISIANA TECH SPEECH AND HEARING CENTER

The Louisiana Tech Speech and Hearing Center located in Robinson Hall affords diagnostic, consultative and remedial services for Tech students and the people of North Louisiana with speech, language, and hearing disorders. The testing and consultative service is provided by faculty who hold the certificate of clinical competence in Speech Pathology and/or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

LOUISIANA TECH SUMMARY TAPE PROCESSING CENTER

The Center, which is housed in the Research Division of the College of Administration and Business, maintains and processes data from the 1970 and 1980 Censuses of Population and Housing and personal income data furnished by the U.S. Bureau of Economic Analysis. Computer programs and projects have been developed to generate demographic and economic analyses for the State, regions in the State, and for selected areas of the Nation. Short reports, articles, and research projects are prepared, both on an in-house basis and on a contractual basis, for local, state, and regional organizations.

LOUISIANA TECH WATER RESOURCES CENTER

The Louisiana Tech Water Resources Center was established on June 12, 1968 with the purpose of:

1. Providing an interdisciplinary study of developments in the broad area of water resources and to interpret these developments to the best advantage of Louisiana Tech, the State and the region as a whole
2. Advising the administration of actions the University should take in its desired participation in these activities
3. Encouraging and promoting the development of research programs and laboratories, and formulating and recommending policy matters in the area of water research
4. Identifying research problems, encouraging interested faculty members to engage in water resources research, and coordinating an interdisciplinary approach to the solution of water research problems
5. Providing liaison between the University, governmental agencies, municipalities, industry, and the public
6. Expanding the areas of continuing education and student involvement on the undergraduate and graduate levels.

To carry out the purposes listed, the organization of the Water Resources Center consists of a Director, Executive Advisory Committee, and a Technical Advisory Committee. The Director is Chairman of the Committees.

The Director is responsible for coordinating and promoting the activities of the university in the area of water resources; encouraging faculty members, through the Executive Advisory Committee, to participate in water resources research, seminars, and continuing education programs; and encouraging student participation in water resources activities.

The Executive Advisory Committee consists of the Research Directors from the Colleges of Administration and Business, Arts and Sciences, Engineering, and Life Sciences. The Executive Advisory Committee is responsible for advising the Director on the size and direction of the water resources program.

The Technical Advisory Committee, which consists of faculty members interested in water resources, informs the Director of and prepares proposals in areas of research that it deems of interest; assists in stimulating student interest in water resources through courses, research projects, and continuing education programs; and disseminates water resources information in general.

NORTH LOUISIANA DAIRY TESTING CENTER

Louisiana Tech has made available space and equipment in the Dairy Processing Plant to receive samples of milk from dairy cows in the North Louisiana area. Detailed accounting

information is collected and computerized records are made available to the dairy farmers within the area. The laboratory is supervised by Louisiana Tech University personnel.

LOUISIANA TECH STALLION STATION

Louisiana Tech stands at stud several prominent thoroughbred and Quarter Horse stallions. Representing some of the most popular Bloodlines in America, these stallions are an integral part of Tech's very popular Equine Science program of the Animal Industry Department.

PRESCOTT MEMORIAL LIBRARY

Centrally located in the heart of campus activities, Prescott Memorial Library is a modern, air conditioned, open stack library which offers a full array of informational resources and services. Its comfortable reading areas, books, periodicals, microforms, A-V materials and competent faculty and staff combine to make Prescott Memorial Library an essential facility for student and faculty academic endeavors. Prescott Memorial Library provides the resources and services that undergird all the academic endeavors for the teaching and research programs of the colleges of Administration and Business, Arts and Sciences, Education, Engineering, Home Economics and Life Sciences. The library is open more than 90 hours each week during regular sessions and remains open until 2 A.M. during final exam week.

Prescott Memorial Library houses an extensive and well-balanced collection of informational sources as well as offering extensive opportunities for research through its computerized literature searching services. The library participates in borrowing programs in cooperation with other major libraries.

An information service, located on the main floor, assists students and faculty members with directional and informational questions, reference and card catalog inquiries. Other major functions of the library such as the card catalog, directories, the circulation desk, the reserve book collection and elevators are also located on the main floor, easily accessible upon entering the building.

Bibliographic instruction, formerly library orientation, is offered by members of the Reference Department to beginning students. At any time a professor may request other, more advanced bibliographic instruction tailored to fit a specific informational need.

As part of the OCLC and SOLINET (Southeastern Library Network) the library is linked through its own computer terminals with more than 2,000 libraries throughout the United States. Prescott Memorial Library is also a designated depository of federal and state of Louisiana government publications.

The Electronic Program Learning Center has audio-visual materials for both course and leisure use as well as the necessary listening/viewing rooms and equipment. Individual carrels are provided for individual listening/viewing and accessing the campus computer.

The library's faculty and staff welcome the opportunity to serve the students and faculty of the Louisiana Tech academic community.

THE RESEARCH DIVISIONS

The participation of both faculty and students in academic and contract research is strongly encouraged at Louisiana Tech University. Toward this end formally organized divisions of research associated with each college have been charged with the responsibility of coordinating and expediting research activities in their respective colleges. At the institutional level, the Chairmen of Research Divisions are charged with the

responsibility of coordinating research activities. Numerous graduate students perform research under the direction of members of the graduate faculty. Contract research for local, state, and national governments, industries and foundations is effected regularly.

TECH ROME

Tech Rome, a Louisiana Tech University travel-study program now in its second decade, is Tech's summer campus in Rome, Italy. Each year, some 200 students, faculty, and staff travel to the Eternal City by chartered intercontinental jet and there live and study for six weeks in Tech's own facilities in the heart of Rome.

Tech Rome is open to Tech students as well as to students and adult non-students from outside Tech. A selection of over fifty courses is offered representing each of Tech's academic colleges, and all courses are taught by Tech faculty from the main campus. Up to thirteen hours credit are available in the six-week session. Both undergraduate and graduate courses are offered.

Besides doing regular course work, the group travels extensively throughout Italy and offers optional side-trips to Greece, France, and Switzerland. A student's cultural horizons are further broadened by the opportunity of living six weeks in the historical center of the western world and by exposure to contemporary European civilization. (For further information, contact Louisiana Tech Rome; Ruston, LA 71272, or visit the Tech Rome office on campus in Keeny Hall 116.)

PREMEDICINE AND PREDENTISTRY

In premedical and predental preparation, a student's major need not be one in a field of science. However, experience shows that the majority of those applying to a professional school will have a science major. Students are urged to follow their personal inclinations in selecting a major, recognizing that a physician or a dentist should have a broad educational background.

First-year students should select a major by the second quarter of the freshman year. A plan of course study will be prepared in consultation with a premedical or predental advisor. This procedure insures the student of fulfilling minimum entrance requirements for the professional school where the student will later seek admission. The minimum requirements for many medical and dental schools include Biology (Botany/Zoology) with one year of lab, Inorganic Chemistry with

one year of lab, Organic Chemistry with one year of lab, General Physics with one year of lab, two years of English, and one year of Mathematics. The requirements vary according to the school and each school must be considered individually in consultation with an advisor.

Applicants to medical school and dental school are required to take the Medical College Admission Test (MCAT) or the Dental Admission Test (DAT), respectively. The test should be taken in the spring of the junior year prior to application. It is strongly suggested that these examinations not be taken until the following courses have been successfully completed: genetics, comparative anatomy, animal physiology, organic chemistry, biochemistry, and physics.

The application process is the student's responsibility, but any premedical and predental advisor will assist with information on how application forms are best completed.

In the spring and fall of the same calendar year, personal interviews are conducted by the Premedical and Predental Advisory Committee for the purpose of evaluating those students preparing to make formal application to either dental or medical school. This is a very important part of the student's initial application process. After these interviews, the Premedical and Predental Advisory Committee prepares recommendations that will be reviewed by the appropriate Admissions Committee of the professional schools to which the student applies.

The Premedical and Predental Advisory Committee is composed of nine faculty members representing the disciplines of Biomedical Engineering, Chemistry, Microbiology, Physics, and Zoology.

The Alpha Epsilon Delta or AED is a national premedical and predental honor society which is open to students possessing a minimum grade point average of 3.20 and at least 40 semester hours of course work.

Scholarships in varying amounts are available to students studying premedicine or predentistry at Louisiana Tech University. Consult academic department heads represented on the Premedical and Predental Advisory Committee or the chairperson of the Advisory Committee for specific information.

SOILS TESTING LABORATORY

The Soils Testing Laboratory facility contains all basic equipment necessary for analyzing soil for all mineral components. This service is available to all persons in North Louisiana.

Academic Objectives

As stated in the Master Plan for Higher Education in Louisiana the goals of higher education are: (1) access; (2) opportunity; (3) quality; (4) diversity; (5) financial support; (6) responsiveness; (7) cooperation; and (8) responsibility. The role of the public sector of higher education is to contribute to the State's efforts to reach these goals. It is especially important that all public institutions in Louisiana be open to all qualified citizens regardless of age, race, sex, religion, physical condition, socio-economics status, ethnic background, handicap, marital status or veteran status. A comprehensive well-organized system of higher education is necessary to achieve Louisiana's goals.

The purpose of Louisiana Tech University, a state university, is to provide without regard to race, religion, sex, national origin, age, marital status, handicap, or veteran status, university level educational and cultural experiences which enable students to fulfill their potentialities as individuals at various instructional levels; to promote the acquisition and utilization of new knowledge through research; and as a publicly supported institution, to be concerned with the dissemination and use of knowledge.

ACADEMIC INSTRUCTION OBJECTIVES

To fulfill its educational and cultural purpose, the University offers to all qualified individuals diversified academic programs which are contemporary and innovative. By state law, every prospective beginning freshman who is a resident of Louisiana is eligible for admission to state supported colleges and universities. Instruction is available within the various colleges and schools of the University. Each of the various colleges and schools of the University has specific objectives consistent with the University's purposes. To provide for different student potentialities and objectives, studies are available at both the undergraduate and graduate levels with degree programs through the doctoral level.

In addition to offering classroom and laboratory instruction of a high caliber, the University is mindful of its concern with students' total educational experiences and to this end seeks:

- to provide programs of excellence, to promote the acquisition of knowledge and to encourage the formation of attitudes, understandings, and skills which may permit students to fulfill their potentialities and educational objectives;

- to provide programs which will take cognizance of contemporary career requirements and opportunities of university graduates and which utilize innovative and interdisciplinary concepts;

- to provide learning experiences which will further an understanding of the physical and social world so that students may adjust to, or help improve, the increasingly complex environment in which they live;

- to offer assistance to students in understanding and appreciating the political, social and economic aspects of our democracy and to encourage them to assume their roles as active and productive citizens;

- to encourage students to develop a set of values based on integrity and personal responsibilities which will serve as a guide for the optimum use of their education;

- to help students develop a mental discipline so that they may continue to mature as they cope with new challenges throughout life;

- to provide highly competent faculty and staff and to encourage their continued professional development.

RESEARCH OBJECTIVES

To realize its commitment to research by promoting the acquisition and utilization of knowledge, the University attempts:

- to encourage both pure and applied research activities by appropriately recognizing scholarly additions to knowledge and applications of knowledge;

- to promote the use of the University as a laboratory for the exploration of ideas at all instructional and professional levels;

- to facilitate research activities by supporting organized research units.

SERVICE OBJECTIVES

To fulfill its service obligation to the campus community and the people of the State, the University seeks:

- to assist in the education and development of the people it serves by engaging in various activities such as non-credit workshops and seminars, extension courses, limited evening programs for degree credit, contract research, advisory services, and testing services.

COLLATERAL OBJECTIVES

In order to accomplish the three aforementioned objectives, the University undertakes to pursue certain collateral objectives such as:

- a continuous program of attracting and retaining a skilled administration, faculty, and staff and encouraging their participation in professional activities;

- attracting qualified students and helping them, individually and in groups, to take advantage of the opportunities offered in the academic community. Emphasis will be on the students—their intellectual, psychological, social and physical growth, their present and anticipated needs and aspirations—in order that each student may acquire knowledge and develop the skills and attitudes necessary to achieve personal goals and the goals of today's society;

- developing effective facilities and service for the University, including learning resource centers such as the library and the computing center;

- securing adequate financial support for the activities of the University and maintaining efficient fiscal management;

- interpreting the role of the University to society.

ACADEMIC ORGANIZATION

Louisiana Tech is organized into the Division of Admissions, Basic and Career Studies, Division of Continuing Education, six colleges and four schools. The colleges are: Administration and Business, Arts and Sciences, Education, Engineering, Home Economics and Life Sciences. The schools include: Graduate School, School of Art and Architecture, School of Forestry and School of Professional Accountancy.

Tech has adopted the uniform quarter system as its calendar. The quarters are twelve weeks in length.

Louisiana Tech offers evening classes on its campus at both the undergraduate and graduate levels. Extension classes are offered as a public service to the region.

MAJORS

Majors in numerous disciplines have been authorized for Louisiana Tech which lead to the granting of two associate degrees, four baccalaureate degrees and nine graduate degrees.

The Associate Degrees are: Associate of Arts (in General Studies), and Associate of Science (in Agriculture Technology, Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Mechanical Technology, Nursing, Petroleum Technology, Secretarial Curriculum and Drafting Technology).

The baccalaureate degrees are: Bachelor of Architecture, Bachelor of Arts, Bachelor of Fine Arts and Bachelor of Science.

The graduate degrees are: Master of Arts (in Art Education, Counseling and Guidance, Elementary Education, English, English Education, History, Human Relations and Supervision, Music Education, Reading, Social Studies Education, Special Education, Speech, Speech Education, Speech Pathology and Audiology, and Speech Pathology and Audiology Education); Master of Business Administration (General and specialties in Accounting, Business Education, Economics, Finance, Management, Marketing and Quantitative Analysis); Master of Fine Arts; Master of Professional Accountancy; Master of Science (in Business Education, Chemistry, Computer Science, Engineering, General Home Economics, Geology, Health and Physical Education, Home Economics Education, Institution Management, Life Sciences, Mathematics, Mathematics Education, Physics, and Science Education). Specialist in Education; Doctor of Business Administration; Doctor of Philosophy in Biomedical Engineering; and Doctor of Engineering.

MINORS

Minors are available to students in certain areas of the University curricula. General guidelines in obtaining a minor are as follows:

1. A minor shall consist of minimum of 21 hours of course work and a minimum of 40 to 60 % of the courses shall be in the 300 to 400 level.

2. If the required courses are not presented in the catalog then the student's advisor will consult with the department head in which the minor is desired and agree upon the number of hours and course content of the minor.

3. The minor will be determined at the beginning of the student's junior year (completed 60 hours) at which time a plan of study will be submitted by the student's advisor to the department in which the minor is to be taken.

4. A student may acquire a double major and one baccalaureate degree by completing the total hours required for one degree and the total hours required in the subject (major) courses for the second degree.

5. A student may complete a second minor by completing the required hours listed in the catalog or agreed to by the student's advisor and the Department Head in which the minor is to be taken.

6. An area of concentration is classed as the area in which the major portion of the student's studies are concentrated.

7. Supporting courses are those in which a student will obtain background information in the major area of study. These courses may be called prerequisites in some cases.

Division of Admissions, Orientation, Basic and Career Studies

OFFICER OF INSTRUCTION

PATSY LEWIS, Dean

The Division of Admissions, Orientation, Basic and Career Studies is the academic unit into which all first quarter freshmen enter.

In July, 1972, Basic and Career Studies was incorporated with Admissions to serve as a total service to entering freshmen. All beginning freshmen are in Basic Studies for one (1) quarter. If after the first quarter is completed and the student has earned a minimum of 3.0 on at least eight (8) hours pursued, the student may elect to go into a senior college.

Following the second quarter of work with a minimum of sixteen (16) hours, and a 2.5 grade point average on all hours pursued, the student may apply for admission to a specific college. After the third quarter, the student must have a 2.0 on at least 24 hours to be eligible to move to upper division. Following the fourth quarter or any subsequent quarter, a student must have a 1.5, not be on academic probation, and have the approval of the senior college to gain admission. This regulation also applies to any student who would transfer to Louisiana Tech University.

At any given time, should a student fail to meet the specific requirements of a college, the student will be dropped into the Basic Studies curriculum.

SUMMER ORIENTATION

An orientation and registration program for all new freshmen is held each summer preceding Fall registration. The summer sessions, conducted by the Division of Admissions, Basic and Career Studies, are open to all freshmen who have received official notice of acceptance to Louisiana Tech University.

The purpose of the orientation and registration program is to enable the entering student to become familiar with the University, its academic programs and major courses of study, and to explore educational and vocational interests and goals.

Each student will select courses for the Fall quarter and complete registration, except for payment of fees.

The objectives of the program are: (1) to introduce the student to Louisiana Tech University and make the transition from high school a smooth and orderly process; (2) to provide the student with academic direction and more personal attention through faculty advising and counseling; (3) to acquaint the student with opportunities, responsibilities, and regulations of the University; (4) to register the student for classes with the exception of payment of fees; (fees will be paid in September), and (5) to acquaint parents with University standards for students and provide an overview of Louisiana Tech University.

READING LABORATORY

Incorporated in the Division is a diagnostic reading laboratory which is designed to serve the University community. Improvement of reading skills is the primary objective of this service area.

Developmental courses and rate improvement courses are available to all students of the University.

CAREER STUDIES

Two-Year Curricula

Included in this division is the Career Studies program. All two-year curricula are administered from this division with counseling and supervision being coordinated with the senior colleges.

The objectives of two-year associate degree programs are: (1) to permit students to continue their educational development in a university-level climate; (2) to provide a curriculum of both general education and specific knowledge; (3) to provide a meaningful termination point for students desiring only two years of college; and (4) to facilitate the present or future continuation of the associate degree students' education toward the baccalaureate degree. The two-year associate degree programs which Louisiana Tech University is authorized to provide are listed as follows: Agricultural Technology, Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Liberal Arts and Sciences, Medical Records Administration, Mechanical Technology, Nursing, Petroleum Technology, Secretarial Curriculum and Drafting Technology.

ASSOCIATE DEGREE GRADUATION REQUIREMENTS

See "Graduation Requirements" for an Associate Degree.

AGRICULTURAL TECHNOLOGY

The Agricultural Technology curriculum is a two-year program leading to the Associate of Science degree. There are six options: Floral Design and Turfgrass Management (Agronomy-Horticulture Dept.), Dairy Cattle Management, Dairy Plant Management, Meat Animal Management and Meats Processing (Animal Industry Dept.). All options require 62 semester hours for completion.

AGRICULTURAL TECHNOLOGY CURRICULUM GENERAL CURRICULUM

(Required in all Options)

	Semester Hours
Agriculture 241, 242, 243.....	27
English 101, 102.....	6
Life Sciences 101.....	1
Speech 110.....	3
	<hr/> 37

Floral Design Option

Art 115, 116, 215.....	12
Botany 101, 104.....	4
Horticulture 103, 215, 200, 403.....	6
Mathematics 105.....	3

Turfgrass Management Option

Agricultural Engineering 206, 210 or 215.....	5
Agronomy 200, 202, 312, 421.....	10
Botany 101, 104.....	4
Horticulture 220, 200.....	3
Mathematics 105.....	3

Dairy Cattle Management Option

Agronomy 211	3
Animal Science 100, 101, 102, 301, 307	12
Mathematics 105	3
Sociology 201	3
Electives	4

Dairy Plant Management Option

Animal Science 102, 301	6
Bacteriology 210	3
Dairying 310, 318	6
Mathematics 105	3
Sociology 201	3
Electives	4

Meat Animal Management Option

Animal Science 100, 101, 301, 303, 318, 410	15
Mathematics 105	3
Sociology 201	3
Electives	4

Meats Processing Option

Animal Science 100, 101, 204, 303, 315	11
Bacteriology 212	4
Mathematics 105	3
Sociology 201	3
Electives	4

BUSINESS TECHNOLOGY

The primary objective of the program is to provide an educational alternative for students who desire, and need for their intended careers, basic education beyond high school, but less than a four-year college program, and some practical knowledge to help prepare them for job entry and possible advancement opportunities. Job opportunities include positions such as supervisors in retail stores, offices, purchasing, and small business, plus opportunities in governmental agencies. This program may also serve the student as a point of entry for a regular four-year college program for the study of business. The degree is Associate of Science.

BUSINESS TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Finance 100	3
Liberal Education Elective	3
Management 105, 201	6
Mathematics 105 or 107 and 108	3 or 4
Office Administration 205	2
Psychology 102 or Sociology 201	3
Social Studies Elective	3
	29 or 30
Sophomore Year	
Accounting 203, 204, 210	7
Economics 215	3
Marketing 235	3
Office Administration 209	3
Science of Approved Elective	3
Speech 110	3
Restricted CAB electives**	9
	31
TOTAL SEMESTER HOURS	60 or 61

*The electives are defined in the College of Administration and Business section of this bulletin.

**Nine hours to be selected from Economics 100 and 200, Finance 201, Office Administration 250, and Quantitative Analysis 220. No 300 or 400 level CAB courses can be taken in this curriculum.

DRAFTING TECHNOLOGY

The curriculum in drafting technology is designed to prepare persons to perform the drafting tasks in a modern technically oriented system. The required courses provide comprehensive training in the preparation of design and working drawings for industry and construction. This program leads to the Degree of Associate of Science.

DRAFTING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Electro-Technology 160, 161	4
Engineering 152, 162	5
English 101, 102	6
Mathematics 111, 113	6
Speech 103	3
Technical Drafting 101, 102, 103	7
	31
Sophomore Year	
Architecture 307	3
Civil Technology 273	3
Computer Science 102	3
Electives	4
Electro Technology 390	2
Mathematics 112	3
Mechanical Technology 101, 251	5
Technical Drafting 201, 202, 204, 205	8
	31
TOTAL SEMESTER HOURS	62

FOOD SERVICE SUPERVISION CURRICULUM

Freshman Year	Semester Hours
Bacteriology 210	3
English 101, 102	6
Home Economics 112, 203, 212, 222	11
Mathematics 105*	3
Sociology 201	3
Speech 110 or 377	3
Electives**	2
	32
Sophomore Year	
Home Economics 242, 342, 282	12 or 16
Management 201	3
Psychology 204	3
Electives	11 or 15
	32
TOTAL SEMESTER HOURS	64

**Students wishing to meet American Dietetic Association requirements as a dietetic technician should select the following courses as electives: Home Economics 127, 213, 243, 207, and 457.

Students wishing to enter the CUP in dietetics should select Chemistry 130, 131, and 132 as electives.

*Students wishing to enter the CUP in dietetics are required to complete Math 107 and 108.

INSTRUMENTATION TECHNOLOGY

Instrumentation Technology is primarily concerned with the theory, design, operation and maintenance of the variety of instruments used by modern industry. The program prepares students in the practical and theoretical aspects of this field through course work supplemented by a considerable amount of laboratory experience. Emphasis is placed on practical skill so that the graduate will be able to perform a variety of tasks in the area of fabrication, installations, checkout, calibration, trouble-shooting, maintenance, and drafting for chemical, electrical or mechanical industrial firms. This program leads to the degree of Associate of Science.

INSTRUMENTATION TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Mathematics 111, 112 and 220.....	9
Mechanical Technology 101, 151, 231 and 251.....	10
Humanities and Social Sciences.....	6
	31

Sophomore Year	Semester Hours
Electro-Technology 160, 161, 182, 264, and 270.....	11
Management 105.....	3
Instrumentation Technology 201.....	3
Physics 209, 210, 261, 262.....	8
Technical Elective.....	3
Technical Drafting 101.....	3
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TOTAL SEMESTER HOURS62

All electives for the program must be approved by the advisor of the program.

LAND SURVEYING TECHNOLOGY

This two-year program of study is offered as an optional program of basic instruction in the Civil Engineering curriculum. Much of the course work is either required or acceptable as electives in the Civil Engineering curriculum; therefore, students completing the prescribed courses of study in Land Surveying may continue in the four-year curriculum of Civil Engineering or they may elect to accept immediate employment as land surveyors. Many job opportunities are to be found with federal, state, parish, or municipal governments; with construction or engineering firms, and with registered Land Surveyors. After six years of experience, the graduate will be eligible to apply for registration as a Land Surveyor. This license will permit the person to begin his/her surveying practice. This program leads to the Degree of Associate of Science.

LAND SURVEYING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Accounting 203.....	2
Computer Science 190.....	1
English 101, 102.....	6
Management 201.....	3
Mathematics 111, 112.....	6
Technical Drafting 101.....	3
	21

Summer Program	Semester Hours
Civil Engineering 250, 251, 252, 253.....	12

Sophomore Year	Semester Hours
Business Law 441.....	3
Civil Engineering 304, 433.....	5
Civil Technology 257.....	3
Engineering 152.....	2
Office Administration 305.....	3
Speech 110.....	3
Electives.....	10
	29

TOTAL SEMESTER HOURS62

All electives must be approved by the Land Surveying Technology advisor.

MECHANICAL TECHNOLOGY

The Mechanical Technology curriculum is a two-year program leading to an Associate of Science degree. The program is primarily concerned with the generation, transmission, and utilization of mechanical energy and heat as well as the design, application, and production of tools, machines, engines, instruments and other mechanical devices. The program emphasizes practical aspects through applied course work and a considerable amount of laboratory work. Persons are trained to perform a variety of tasks in the areas of fabrication and installation, maintenance, testing, troubleshooting, operating, and even special areas such as drafting for commercial and industrial employers involved in any way with mechanical equipment and machines.

MECHANICAL TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Mathematics 111, 112.....	6
Mechanical Technology 101, 151, 201, 251, 252.....	11
Physics 209, 261.....	4
Technical Drafting 101, 102.....	5
	32

Sophomore Year	Semester Hours
Engineering Mechanics 206, 207.....	6
Electro-Technology 160, 161.....	4
Mathematics 220.....	3
Mechanical Technology 204, 206, 215, 221, 226, 231, 253.....	17
Physics 210, 262.....	4
	34

TOTAL SEMESTER HOURS66

MEDICAL RECORD TECHNOLOGY

Freshman Year	Semester Hours
English 101, 102.....	6
Medical Record Science 103, 104, 105, 106, 203, 280.....	15
Math 107, 108.....	4
Zoology 111, 112, 225, 226.....	8
	33
Sophomore Year	Semester Hours
Quantitative Analysis 220.....	3
Health & Physical Education.....	2
Medical Record Science 210, 211, 212, 220, 221, 225, 230, 231.....	16
Sociology 201.....	3

Elective (approved)	3
Management 201	3
—	33
TOTAL SEMESTER HOURS	66

NURSING

The purpose of the Division of Nursing is to prepare graduates, with an Associate of Science Degree in Nursing, to function as beginning practitioners under the supervision of qualified professional nursing and/or medical personnel; thus affording unique benefits to the physical and mental health program of the local community. The graduates will, also, upon completion of the prescribed program, be eligible to write the examination required for state licensure to become registered nurses.

The Division of Nursing is approved by the Louisiana State Board of Nursing.

Admission to the Division of Nursing will be based upon the following criteria established by the Admission Committee, Division of Nursing:

- Acceptable scores on the ACT
- Acceptable scores on the NLN Pre-Nursing and Guidance Examination
- Grade point average of 2.6 or better from high school or acceptable score on the GED test.
- If applicable, acceptable score on the Louisiana State Board of Practical Nursing Examination.
- Indication of emotional stability, character, personality, maturity and interest in nursing as determined by personal interview.
- Applicants must furnish satisfactory evidence of good health on forms to be sent by the University. An annual physical examination including a chest X-ray is required.

Applicants for readmission and transfer students must meet admission and progression criteria at the time of application. If more than 3 quarters have elapsed since the student was enrolled in a nursing course, a reapplication must be approved by the Admissions Committee.

All transfer students must provide a syllabus and course description for all courses for which transfer credit is desired. They must also submit a letter of reference from a faculty member of the school of nursing previously attended.

Nursing students must be covered by professional liability insurance prior to registering for any nursing course.

In addition to the regular University fees, costs for uniforms, supplies and equipment including books required in the nursing program is approximately \$300.

Students must achieve a minimum grade of C in each nursing and nursing related course to progress from one sequentially designed nursing course to the next. A nursing course may be repeated only one time.

Upon successful completion of all course requirements, the student is eligible for graduation with an Associate of Science Degree.

NURSING CURRICULUM

Freshman Year	Semester Hours
Nursing 109, 110, 112, 114	15
Zoology 225, 226	4
Mathematics 107	2
Life Sciences 101	1
English 101	3
Bacteriology 212, 213	4
Psychology 102	3
—	32

Summer Quarter	
Nursing 116	5
Elective	3
—	8

Sophomore Year	
Nursing 210, 212, 214, 216	18
Psychology 408	3
Home Economics 203	3
English 102	3
—	27

TOTAL SEMESTER HOURS	67
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PETROLEUM ENGINEERING TECHNOLOGY

The Petroleum Engineering Technology curriculum is a two-year program leading to the Associate of Science degree. The objective of the program is to train petroleum technicians who can work effectively with professional engineers in creating solutions to engineering problems. The program emphasizes practical aspects through applied course work and a considerable amount of coordinated laboratory work. Registrants will be trained to perform maintenance, and test operations, to make measurements, to provide engineering support and in general be capable of performing a variety of technical tasks proficiently. The graduate will have received training in report writing, documentation and general industrial practices and can fit rapidly into the typical industrial/technical organization within the petroleum industry.

PETROLEUM ENGINEERING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 111, 112, 220	9
Mechanical Technology 101, 251	5
Petroleum Engineering 200	3
Petroleum Technology 101	3
Technical Drafting 101	3
—	29

Sophomore Year	
Electives	6
Electro-Technology 160, 161	4
Petroleum Technology 102, 103, 104	10
Physics 209, 210, 261, 262	8
Speech 110	3
—	31

TOTAL SEMESTER HOURS	60
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Electives must be approved by the Head of the Department of Petroleum Engineering and are to be selected from humanities, social science or communications.

SECRETARIAL CURRICULUM

The two-year Associate of Science program has two options-Secretarial Option (shorthand) and the Information-Word Processing Option (non-shorthand)-and is designed: (1) to prepare students who wish to qualify for beginning secretarial positions in large and small commercial and governmental offices; (2) to permit students to apply the credits earned on the Associate degree program toward the four-year office administration program should they choose to continue their

education to prepare for more demanding and challenging career opportunities.

The Associate of Science degree in the Secretarial Curriculum with the shorthand option is designed for students who wish to qualify for office positions in which shorthand is a requisite for employment and future advancement. This program provides the student with skills and knowledge which, when complemented by work experience and additional study, may enable the student to attain an administrative secretarial position. Students electing this option will obviously qualify for a larger number of secretarial-type positions than will students following the information-word processing option.

SECRETARIAL CURRICULUM

SECRETARIAL OPTION

Freshman Year	Semester Hours
English 101, 102.....	6
Liberal Education or CAB Electives	6
Management 105	3
Mathematics 114.....	3
Office Administration 202, 203, 206, 207, 250	13
	31
Sophomore Year	
Accounting 203, 204.....	4

Economics 215.....	3
English 201 or 202.....	3
Office Administration 303, 304, 305, 307, 309, 310.....	17
Quantitative Analysis 220	3

30

TOTAL SEMESTER HOURS61

The information-word processing (non-shorthand) option is designed for students who are interested in performing the various functions of secretarial work in an office except that of taking dictation. This position is often designated as a correspondence secretary. The curriculum has been structured to provide the student with a high-level skill in machine transcription and with business knowledge and understanding that will enable the student to attain employment in offices in which shorthand is not a required skill. With additional experience and study, the student following this curricular pattern can expect to advance to higher levels of work in the secretarial profession. The program provides a good foundation for those interested in working in word processing centers.

INFORMATION-WORD PROCESSING OPTION

Office Administration 209, 210, 211, 212 12

NOTE: The 12 semester hours above replace the following courses in the Secretarial (Shorthand) Curriculum: Office Administration 206, 207, 303, 304.

Department of Air Force Aerospace Studies

COL. CHARLIE B. MOORE

Professor of Air Force Aerospace Studies

PURPOSE: The MISSION of the Air Force ROTC is to commission the finest young men and women in the United States to meet Air Force requirements.

The AFROTC program is a major source of Air Force officer procurement.

OBJECTIVES: The objectives of the program are to select and commission men and women who will demonstrate dedication to their assignments; who willingly accept responsibility; who think critically and creatively; and who have the ability to communicate with clarity and precision.

Students have an option to complete the Air Force ROTC Program as a member of either the four- or two-year program.

FOUR-YEAR PROGRAM: This is divided into two parts - the General Military Course (GMC), for Freshmen and Sophomores, and the Professional Officer Course (POC), for Junior and Senior students. A four-week Field Training is conducted at an Air Force base during the summer months, normally between the Sophomore and Junior years.

TWO-YEAR PROGRAM: This is the Professional Officer Course for Juniors and Seniors. Cadets are normally selected from transferees from other colleges or from sophomore students who did not enroll in the General Military Course as freshmen. The basic requirement is that the student have two academic years remaining at either the undergraduate or graduate level, or a combination of both, upon entering the Professional Officer Course. A prerequisite for enrollment in the Professional Officer Course via the two-year program is the completion of a six-week summer Field Training course given at an Air Force base. Students in the two-year program must attend field training the summer before they enroll in the POC program. Since the processing procedure for the POC must be completed several months in advance of enrollment, students interested in the Two-Year Program should apply during the preceding fall and winter quarters.

REQUIREMENTS FOR ADMISSION: General Military Course (Freshmen and Sophomores); Enrollment requirements are as follows: (1) be a U.S. Citizen, (2) possess good moral character, (3) not be more than 30 years of age at graduation and commissioning (may be waived to 35 for prior service); not more than 26 1/2 years at graduation and commissioning if entering flight training, (4) be medically qualified, (5) sign an oath of loyalty to the United States, and (6) be accepted by the University as a regular full-time student. Veterans will be phased into Air Force ROTC according to their college standing and at the discretion of the Professor of Air Force Aerospace Studies.

Professional Officer Course (Juniors and Seniors): Students are selected for the POC on a competitive basis. In addition to those requirements mentioned for the GMC, entrance into the POC requires that students be not less than 17 years of age; meet mental and physical requirements for commissioning; have satisfactorily completed approximately 60 semester hours toward his or her degree and be in good standing in the institution; be recommended by the Professor of Air Force Aerospace Studies.

ACADEMIC CREDIT: The classroom work in both the General Military and Professional Officer Courses is classified as

elective work and is credited in varying amounts, depending on the student's program, toward degree requirements. Students should consult with the dean of their particular college to determine the amount of credit allowed.

FIELD TRAINING: All cadets must complete summer Field Training which consists of academic work, intensive orientation on Air Force environment and traditional military training. It also includes orientation flight in Air Force aircraft and a close look at the Air Force in operation. Cadets in the two-year program must, by law, attend six-week Field Training prior to POC entry. Four-year program cadets attend four week Field Training, normally between their sophomore and junior years. Field Training is conducted at an Air Force base, and all cadets receive approximately \$85 per week while in attendance. Round trip travel pay between their home and the Field Training base is provided to each cadet.

FLIGHT INSTRUCTION PROGRAM: Senior members planning to enter pilot training are required to complete the Flight Instruction Program, unless they are in possession of a valid FAA private (or higher) license. The program affords cadets the opportunity to solo in light aircraft, providing approximately 25 hours of total time at government expense.

LEADERSHIP LABORATORY TRAINING: In addition to the academic training received, a part of each Aerospace Course is reserved for Leadership Laboratory. The Cadet Corps is comprised completely of cadets in the AFROTC program. The corps is cadet directed and operated and all plans and programs are developed and executed by cadets. Consequently, each potential Air Force officer has the opportunity to develop leadership abilities through directed and elected activities.

REQUIREMENTS FOR COMMISSION: Upon completion of AFROTC POC and receipt of a baccalaureate degree, cadets are eligible for a commission as a Second Lieutenant in the United States Air Force.

DISTINGUISHED AIR FORCE ROTC GRADUATES: Up to 20% of the seniors each year may be designated as Distinguished Graduates of the AFROTC program. Their superior performance earns them preferential consideration in job assignments and in opportunities for both Regular Air Force Commissions and graduate education at Air Force expense.

MONETARY ALLOWANCE WHILE PURSUING THE POC: All POC members receive a tax-free monthly allowance of \$100 or a total of \$2,000 during this two-year course.

COLLEGE SCHOLARSHIP PROGRAM: Each year the Air Force awards a number of four, three, and two year scholarships on a competitive basis, to the best qualified students. Scholarships include \$100 per month for 10 months each year the scholarship is in effect, and also provide tuition, fees, books, laboratory expense, and out of state fees if applicable.

BOOKS AND UNIFORMS: All uniforms and textbooks required for the General Military Course and the Professional Officer Course are furnished by Louisiana Tech and the U.S. Air Force. Each member of AFROTC will make a refundable deposit of \$10.00 to cover possible uniform loss or damage. Each member of AFROTC is also assessed a \$15 annual

activity fee, which is used for the military ball, squadron parties, and other cadet activities.

EXTRACURRICULAR ACTIVITIES: AFROTC sponsors a number of functions that provide avenues for further personal development for qualified cadets.

ARNOLD AIR SOCIETY: The Emmett O'Donnell Squadron of the Arnold Air Society is an organization dedicated to promoting a better understanding of the role of airpower in the Aerospace age. This is a national honorary society limited to selected cadets who demonstrate outstanding academic and leadership traits.

ANGEL FLIGHT: The O'Donnell Flight of the National Angel Flight is an honorary co-ed auxiliary of the Arnold Air Society. It is a service organization open to co-eds who meet the Flight's qualifications.

HONOR GUARD: A military group composed of outstanding cadets who perform a variety of ceremonial functions. Those include providing the personal escort guard for the

University President, conducting flag ceremonies, providing a color guard for campus and civic activities, and giving precision drill exhibitions.

SPECIAL OPERATIONS SQUADRON: This activity allows cadets to follow a more strenuous and demanding program associated with Air Force special operations and special forces training. Survival training and land navigation are some of the activities pursued.

ORIENTATION FLIGHTS AND AIR BASE VISITATION: Members are afforded opportunities to fly in various types of military aircraft for purposes of orientation and familiarization. Air Force Base visitations are also offered and encouraged.

FORMAL MILITARY BALL: Cadets sponsor a formal Military Ball annually for the members of the Corps and their invited guests.

INTRAMURAL SPORTS: AFROTC sponsors teams and individuals in all campus sports events.

College of Administration and Business

OFFICERS OF INSTRUCTION

BOB R. OWENS, Dean
BURTON R. RISINGER, Dean Emeritus
PHILIP F. RICE, Director, Graduate Division
JAMES R. MICHAEL, Director, Research Division
HOMER G. PONDER, Director, Undergraduate Division
HAROLD J. SMOLINSKI, Director, School of Professional Accountancy
JAMES L. HESTER, Head, Department of Business
TOM S. SALE, III, Head, Department of Economics and Finance
REBA K. NEEL, Head, Department of Office Administration

ACCREDITATION

The College of Administration and Business is fully accredited by the Accreditation Council of the American Assembly of Collegiate Schools of Business (AACSB). The Research Division of the College of Administration and Business is accredited by the Association for University Business and Economic Research (AUBER).

DEGREES AND CURRICULA

ASSOCIATE. Two programs lead to the Associate of Science degree: the Secretarial Curriculum and the Business Technology Curriculum. Requirements for these programs are given in the Bulletin under the Division of Admissions, Basic and Career Studies.

BACHELOR. The baccalaureate degree offered by the College is the Bachelor of Science degree. The four-year curricula leading to the degree of Bachelor of Science are the Accounting Curriculum, the Office Administration Curriculum, the Business Economics Curriculum, the Business Administration Curriculum and the Finance Curriculum.

MASTER. The Master of Business Administration degree is offered. The curriculum emphasizes management decision making which is applicable to all specialties in business administration, as well as to general management responsibilities. A number of specialties are available.

The Master of Professional Accountancy degree is offered.

DOCTOR. The Doctor of Business Administration (D.B.A.) degree is offered.

See the University Graduate School section for additional information on graduate degrees.

HISTORY

Among the purposes listed in the original act creating the University was to give instruction in business subjects and Tech's first graduate, Harry Howard, graduated in 1897 in business. In 1950, the School of Business Administration was created by the Louisiana State Board of Education. In 1970, Tech was designated a University and the School became the College of Administration and Business.

PURPOSE

As part of a state university, the College of Administration and Business recognizes its commitment to serve the public interest principally in educational endeavors. In accordance with general university objectives, therefore, it is the primary purpose of the College to offer instructional programs which combine broad educational backgrounds with the opportunity

for some specialization in selected business and economics areas.

RESEARCH DIVISION

The activities of the Research Division involve contract and, to the extent resources are available, non-contract research. Contract research activities are oriented mainly toward public service projects. Non-contract research activities include publication of **"The Louisiana Economy"** (a quarterly publication).

CENTER FOR ECONOMIC EDUCATION

The College of Administration and Business has established a Center for Economic Education directed by Dr. B. Earl Williamson. The Center is affiliated with the Louisiana Council and the national Joint Council on Economic Education. The Center's primary purpose is to provide a comprehensive program for increasing the level of economic understanding of its citizenry.

BURTON R. RISINGER FACULTY CHAIR

Dean Emeritus Burton R. Risinger was Dean of the College of Administration and Business from 1945 until retirement in 1975. He was also President of the Lincoln Bank and Trust Company in 1962 and Chairman of the Board from 1962-1975 and continues to be active as a Board member.

To honor his meritorious service the Lincoln Bank and Trust Company in cooperation with the SBA Foundation (a non-profit corporation to promote the business college) established in 1977 the Burton R. Risinger Faculty Chair. The purpose of the semi-endowed chair is to promote faculty scholarship, professional growth and overall development of the college.

SMALL BUSINESS INSTITUTE

The Small Business Institute (SBI) is a contractual program between the College and the federal Small Business Administration. The purpose is to provide management counseling and technical assistance to small business concerns. Professor James A. Webb, Jr. is Coordinator of the Institute.

HUMAN RESOURCES CENTER

The Human Resources Center was established within the College of Administration and Business to coordinate and promote instruction, research, and public service in the areas of personnel management, industrial relations, and organizational behavior. Dr. Anthony Jurkus is Director of the Center.

AWARDS AND RECOGNITIONS

BETA ALPHA PSI AWARD

Beta Alpha Psi annually awards a certificate in recognition of outstanding scholarship in the field of accounting to the graduating senior with the highest scholastic average.

BETA GAMMA SIGMA

Students with an outstanding scholastic record in the College of Administration and Business may be recognized by election to the honorary society of Beta Gamma Sigma.

CAB OUTSTANDING SENIOR SCHOLARS

The faculty of the College of Administration and Business each year elects from among the seniors a group of students

who are designated as outstanding senior scholars. The selection is made primarily on the basis of scholarship. The pictures and accomplishments of these students are placed in a lighted bulletin board for a year.

CPA AWARD

The Society of Louisiana Certified Public Accountants makes an annual award to the graduating senior in accounting who has the highest scholastic record for the four years. It consists of a very attractive gold key.

DELTA PI EPSILON

Delta Pi Epsilon is a national honorary professional graduate fraternity in business education. The fraternity was organized at New York University in 1936. Scholarship, cooperation, and leadership in business education are the primary functions of the fraternity.

DELTA SIGMA PI SCHOLARSHIP AWARD

The Delta Sigma Pi Scholarship Award key is awarded annually by the fraternity to the senior, whether or not a member of the fraternity, who ranks the highest in scholarship in any one of the curricula in the College of Administration and Business.

PHI CHI THETA NATIONAL KEY AWARD

The Phi Chi Theta National Key Award is presented annually to a senior member of the fraternity enrolled in the College of Administration and Business. The key is awarded on the basis of scholarship, leadership and activities.

SCHOLARSHIPS

For information about scholarships available to all Louisiana Tech students, contact the Division of School and College Services. The following scholarships are available to CAB students only. Those administered by the CAB are awarded by faculty scholarship committees and information may be obtained by contacting the Office of the Dean, College of Administration and Business, P.O. Box 10318, Tech Station, Ruston, Louisiana, 71272. Most scholarships are awarded in the early spring for the following year and notices are posted when applications are being taken.

B. H. RAINWATER

The family of B. H. Rainwater, Sr., a man prominent in Ruston business and civic affairs for over 50 years, has established a memorial scholarship. The amount of \$300 is awarded annually to a student in the finance curriculum who is interested in a career in Real Estate.

BURTON R. RISINGER

Through the gifts of alumni and others a scholarship has been established to honor Burton R. Risinger, Dean Emeritus. The award is normally awarded to a first year Business Administration student in the approximate amount of \$300.

BUSINESS FOUNDATION

To assist the College in its developmental programs there is a non-profit, tax exempt corporation known as the SBA Foundation. Contributions are accepted by the foundation from corporations, alumni and others. Any gifts designated for scholarships are available to students in CAB programs.

LAWSON L. SWEARINGEN—COMMERCIAL UNION ASSURANCE COMPANIES

Commercial Union Insurance Companies, headquartered in Boston, Massachusetts, with regional offices located in Ruston, Louisiana, established in 1981 a recognition endowment

award in the CAB in honor of its Chairman and Chief Executive Officer, Lawson L. Swearingen. Mr. Swearingen is a 1947 business graduate of Louisiana Tech.

EUGENE L. GILL

When he learned of Tech's new School of Professional Accountancy, Mr. Gill—a CPA licensed in three states—wrote, "This is one of the greatest movements in the proper direction

LORAIN N. HOWARD ENDOWED SCHOLARSHIP PROGRAM

The family and friends of Loraine N. Howard, prominent business woman and community leader, have established a memorial endowment for scholarships for students in Office Administration. The scholarships are awarded annually to outstanding students pursuing a curricula in the Department of Office Administration.

R. WAYNE MONDY SCHOLARSHIP

Dr. R. Wayne Mondy, a 1974 Tech graduate with the Doctorate of Business Administration, has established a scholarship program with contributions to the SBA Foundation. The endowment fund will provide scholarship assistance in the minimum amount of \$300 to a student enrolled in a program of the College of Administration and Business.

J. MURRAY MOORE SCHOLARSHIP

J. Murray Moore, a 1942 Tech Business Administration graduate, has endowed a \$12,244 scholarship fund in the CAB to "encourage students in making a career in private enterprise." Mr. and Mrs. Moore operate a construction firm based in El Dorado, Arkansas.

T. L. JAMES AND COMPANY

T. L. James and Company has established a scholarship-internship award for an entering freshman each year who plans to enroll in one of the curricula of the College of Administration and Business. The award is a minimum of \$2,600 during a four year program in the form of \$650 scholarships for each of the first three years and an internship work opportunity in the final year of study which will enable the student to earn at least as much as the scholarship portion of the award.

CHARLES L. WINGFIELD—C.I.T. FINANCIAL SCHOLARSHIP FUND

C.I.T. Financial Corp., headquartered in New York City, has established a \$10,000 recognition endowment award in the CAB in honor of its financing division vice president, Charles L. Wingfield. Mr. Wingfield is a 1948 business graduate of Louisiana Tech.

DAVID L. GLOER

The Beta Psi Chapter of Delta Sigma Pi has established a scholarship award in memorial to one of its outstanding members killed in the Vietnam War. The "David L. Gloer Scholarship Award" (fifty-dollar minimum) is given annually to a senior in any field of study in the College of Administration and Business. Selection of the recipient is based on academic standing, financial need, and other considerations.

PHI CHI THETA

The Delta Eta Chapter of Phi Chi Theta awards annually a scholarship to a member enrolled in any curricula in the College of Administration and Business. Selection is made on the basis of need, scholastic achievement, leadership qualities, character, motivation and potential by a committee selected from the members of the fraternity.

ORGANIZATIONS

ACCOUNTING CLUB

The Accounting Club was organized in December, 1953, as a professional organization for the purpose of encouraging higher standards of scholarship and developing a closer relationship among the accounting students, faculty, and businessmen. The group meets twice a month with one meeting being devoted to the business affairs of the club and the other meeting being devoted to professional development.

ALPHA KAPPA PSI

Eta Tau chapter of the professional national fraternity of Alpha Kappa Psi was chartered on February 12, 1967. Alpha Kappa Psi is the oldest professional fraternity in business. The objects of Alpha Kappa Psi are "to further the individual welfare of its members; to foster scientific research in the fields of commerce, accounts, and finance; to educate the public to appreciate and demand higher ideals therein; and to promote and advance in institutions of college rank, courses leading to degrees in business administration"

AMERICAN SOCIETY OF PERSONNEL ADMINISTRATION

The Louisiana Tech Chapter of the American Society of Personnel Administration was chartered in 1977. The organization is a worldwide professional association of personnel and industrial relations practitioners, university faculty members, and students. The programs and activities of the organization are designed to provide a professional enrichment for the student's academic experience.

BETA ALPHA PSI FRATERNITY

Alpha Chi chapter of the national fraternity of Beta Alpha Psi was established in May, 1956. Beta Alpha Psi is a national professional and honorary fraternity, the purpose of which is to encourage and foster the ideal of service as the basis of the accounting profession; to promote the study of accountancy and its highest ethical standards; to act as a medium between professional accountants, instructors, students, and others who are interested in the development of the study or profession of accountancy; to develop high moral, scholastic, and professional attainments in its members; and to encourage cordial relations among its members and the profession generally.

BETA GAMMA SIGMA

Beta Gamma Sigma is the national honorary scholastic society for students in all fields of business. It is the scholastic society recognized by the Accreditation Council of the American Assembly of Collegiate Schools of Business. A school or college of business administration must be a member of the Accreditation Council of the AACSB in order to have a chapter of Beta Gamma Sigma. Membership in the society is highly prized as a badge of merit recognized by leading business administrators everywhere.

BUSINESS STUDENTS ASSOCIATION

The official student body organization of the College is the Business Students Association. The president of this association is the president of the student body of the College of Administration and Business. Dues are one dollar per quarter, and this is an official charge recognized by the College.

DATA PROCESSING MANAGEMENT ASSOCIATION

The Louisiana Tech University Data Processing Management Association is a student organization affiliated with the Data

Processing Management Association; its charter was received on January 23, 1973. Membership is open to students interested in data processing. The organization's purposes are to encourage the interest of its members in data processing and to facilitate the exchange of information between students and professionals in data processing in their efforts to develop a better understanding.

DELTA SIGMA PI

Beta Psi chapter of the professional international fraternity of Delta Sigma Pi was chartered on May 15, 1948. The purpose of the fraternity is to foster the study of business, to encourage scholarship and the association of students, to promote closer affiliation between the commercial world and students of business, to further a high standard of business ethics and culture, and to promote the civic and commercial welfare of the community.

FINANCE CLUB

Membership in the Finance Club is open to any student interested in a career in Finance, including Real Estate, Insurance, Banking, Investments, and Financial Management. The Club is devoted to the professional development of its members and to fostering improved relationship among students, faculty, and professionals in the several areas of Finance.

NATIONAL ASSOCIATION OF BUSINESS ECONOMISTS

Students enrolled in business economics or related fields are eligible for student membership in the National Association of Business Economists, the largest association of economists connected with private business. One of the purposes of the national association is to illuminate the contribution which trained economists can make in the business firm. The purpose of the Tech chapter is to provide a forum for social and professional exchange between students, faculty, and the national association.

NATIONAL COLLEGIATE ASSOCIATION FOR SECRETARIES

The Louisiana Tech Chapter of the National Collegiate Association for Secretaries was established as a charter of the national organization in March, 1962. This association is a professional organization for degree-granting collegiate institutions offering Office Administration / Administrative Services programs on the undergraduate level and teacher education programs in the Office Administration / Administrative Services area.

The activities of the organization are designed to encourage exchange of ideas and experiences among those students planning administrative support careers; to provide an opportunity for teachers-in-training in the administrative support area to expand their understanding of the administrative / secretarial profession; to provide opportunities for contacts between students and professional business men and women.

OMICRON DELTA EPSILON

Omicron Delta Epsilon is one of the nation's largest academic honor societies. It was established in January of 1963 as the result of the merger between two major honor societies, Omicron Delta Gamma, which was originally founded in 1915, and Omicron Chi Epsilon, which was originally founded in 1955. Omicron Delta Epsilon is a member of the American Association of Collegiate Honor Societies and, thus, is fully recognized and accredited. It is open to students who have a 3.0 or better grade point average, graduate students in the field of Economics, the Economics and Finance Department.

PHI CHI THETA

Phi Chi Theta, a national fraternity in business and economics, was first organized in 1924. Louisiana Tech's chapter, Delta Eta, was established in 1974. The purposes of the organization are to promote the cause of higher business education and training; to foster high ideals in business careers; to encourage fraternity and cooperation while preparing for such careers; to stimulate the spirit of sacrifice and unselfish devotion to the attainment of such ends.

PI SIGMA EPSILON

Gamma Mu Chapter of Pi Sigma Epsilon evolved from the Louisiana Tech Marketing Club. PSE exists to meet a need—that of providing a collegiate organization for marketing students, educators, and professionals; and is dedicated to the building of the marketing profession.

SIGMA IOTA EPSILON

Zeta chapter of Sigma Iota Epsilon was organized at Louisiana Tech in 1949. Sigma Iota Epsilon is an honorary and professional fraternity in the management field. Its purpose is to provide stimulation and incentive to students of management, to recognize their scholastic merit, and to foster management as a profession and the development of the professional attitude toward it. The fraternity is the student division of the Academy of Management, which grants full membership to those who are interested and engaged in advancing the theory and philosophy of management through teaching, research, or publication.

SOCIETY FOR THE ADVANCEMENT OF MANAGEMENT

The local chapter of the Society for the Advancement of Management received its charter on January 24, 1948. The purpose of this society is to inspire students in business administration and to promote contact among individuals in the business world.

COUNSELING PROGRAM

Each undergraduate student is assigned to a CAB faculty member who is the student's curricular advisor. This assignment is made early during the student's first term of enrollment in the University and the counselor designated is based on the curriculum or option the student enrolls in at registration. Counselors are assigned by the CAB undergraduate division director.

The CAB counselors advise students which courses to take in future quarters during established preregistration periods, and are available during posted conference hours to advise the students on academic and career matters.

UNDERGRADUATE ADMISSIONS AND TRANSFER POLICIES

ADMISSIONS POLICIES

Louisiana Tech's College of Administration and Business seeks to assist students in determining and achieving appropriate educational objectives. Part of the CAB's responsibility to present and potential students and to the general public is to admit to the CAB only those students who, by past educational preparation and demonstrated capability, are prepared to complete their intended curriculum at the CAB's required level of quality.

In general, students who have an overall, attempted average of 2.0 or higher and are not on probation may be admitted. The complete current statement of admissions requirements may be obtained upon request to the CAB dean's office, which

makes all admissions decisions and transfers students into the CAB during each registration period in accordance with policies in effect at that time.

TRANSFER POLICIES

With some exceptions, the College of Administration and Business accepts for degree credit work such as that taken by examination and at other institutions in accordance with published policies of Louisiana Tech University as stated in the general information section of the University's Bulletin. The final determination of degree credit in any CAB curriculum, is, however, made by the CAB dean's office. A complete statement of current degree credit evaluation policies may be obtained upon request from the CAB dean's office.

SCHOLARSHIP STANDARDS

Students in the CAB may carry a normal course-load, as defined by the University, except when on probation, during which term (s) the student is placed on "limited load" and may schedule a maximum of nine semester hours.

Each time CAB students are suspended, their total academic status is subject to a review by the CAB Scholastic Standards Committee. In addition to acting on appeals for reinstatement from a suspension, the Committee may impose special conditions on suspended students. The Committee may also disenroll a student from the CAB when the requirements for admission are not being met by the student in the quality of work after admission. Additionally, a student is normally "Dropped from the CAB" when an indefinite suspension, or the equivalent, has been received.

CAB GRADUATION REQUIREMENTS

To receive a degree from the CAB a student must be admitted to and spend the senior year enrolled in the CAB. This is normally interpreted to refer to the courses specified in the senior year of the student's curriculum. The number of semester hours defined in the senior year and other graduation requirements are the same as for the University.

CATALOG REQUIREMENTS AND CHANGES

All official notices affecting CAB undergraduate students are posted on the bulletin board directly across the hall from the dean's office (CAB 106). The notices placed thereon officially update the University bulletins and are binding on students pursuing programs offered by the College as if published in the bulletins.

All CAB students enter the College under all University and CAB policies then in effect. Each student is responsible for meeting all catalog requirements for graduation, including taking courses in the proper sequence as shown in each curriculum.

When course requirements are changed in the curricula, they are to improve the education of students. Such changes are not retroactive on work already taken by admitted students but will apply on work yet to be taken, except that the total remaining hours required for graduation cannot be increased and a student is not required to take an added course not available prior to graduation or for which the specified prerequisite course (s) will not have been required.

Each time a student changes curricula or options a reevaluation of all work already taken is done in terms of that particular program's requirements. Due to the rapid advancement in knowledge, a student is permitted five years from the first admission date to complete a four-year curriculum, after which

time a reevaluation of all work previously taken may be required.

Any deviations from curricular and other CAB requirements must be approved in writing in advance of the deviation (e.g., substitution of courses). Such changes must normally be recommended by the student's assigned counselor and approved by the CAB undergraduate division director.

ELECTIVES SYSTEM IN CAB

Students are responsible for selecting courses which meet catalog requirements including electives. Certain electives are defined below. Any courses taken which are not specified in the student's program and are not specifically included in this electives policy section will be counted as non-degree courses. To be acceptable for degree credit any deviation in required or elective courses must be recommended in writing, in advance, by the student's counselor and have the written approval of the CAB undergraduate division director. In general, course substitutions are discouraged, including electives, and must have a sound justification to be approved.

CAB ELECTIVE

CAB electives may be satisfied by any course (s) offered by the College of Administration and Business approved by the student's counselor. It normally will be an advanced course (300 or 400). Some CAB electives are restricted as to choice of courses or subject areas.

CONCENTRATION FIELD ELECTIVE

Several CAB programs require or permit a concentration field in a subject area such as management or marketing. A concentration field consists of a minimum of six semester hours of advanced study in a subject field beyond the introductory course (s). CAB and specified option elective courses as approved by the student's advisor may be used to obtain a concentration.

LIBERAL EDUCATION ELECTIVE

This type of elective may be satisfied by any course \ddagger offered in the College of Arts and Sciences or specified courses in other colleges as follow: Psychology (any course); Botany 101; Home Economics 100; Geology 111, 112; Life Sciences 456; Petroleum Engineering 200; Zoology 105 or 111, 112; and AFAS Junior-Senior level (POC) courses.

\ddagger (Note: Special problems and advanced honors courses are not permitted unless the student has a minimum of 15 semester hours preparatory work in a discipline prior to taking such a course in that discipline.)

OPTION ELECTIVE

This refers to the election of a designated group of courses by students in the Business Administration curriculum. The requirements of the option chosen will govern the courses to be taken.

RESTRICTED ELECTIVE

This refers to a type of elective in which the curriculum or option designates the area from which the course must come or indicates that the choice must come from a group of listed courses.

SCIENCE ELECTIVE

A science elective may be satisfied by any one or a combination of the following specified courses: Physics 205; Zoology 105 or 111, 112; Botany 101; Chemistry 101 and coreq. 103 or 130; Geology 111, 200; and Physics 207. While students will normally select science electives only from the foregoing list, advisors may also approve the following courses: Physics 206;

Geology 112; Chemistry 102, and coreq. 104 or 131. (Special problems and advanced honors will not satisfy this elective; the objective of these electives is a survey knowledge of the subject area (s).)

SOCIAL STUDIES ELECTIVE

This elective is normally satisfied by any course (s) \ddagger in the following fields: Geography, History, Political Science, Philosophy, Sociology. Those courses dealing with man, the cultural development and adaptation to changing environment, are encouraged.

\ddagger (Note: Special problems and advanced honors courses are not permitted unless the student has a minimum of 15 semester hours preparatory work in a discipline prior to taking such a course in that discipline.)

REQUIREMENTS FOR A MAJOR IN ECONOMICS FOR GENERAL STUDIES STUDENTS IN COLLEGE OF ARTS AND SCIENCES

(See degree curriculum in General Studies in the College of Arts and Sciences.)

For students in the College of Arts and Sciences who wish to major in economics (and minor in a non-business field) the following courses will be required:

Semester Hours	
Economics 201, 202.....	6
Economics 312.....	3
Economics 408.....	3
Economics 437.....	3
Economics or Finance electives approved by the Head of the Department of Economics and Finance	15
TOTAL.....	30

Students selecting a major in Economics will not be permitted to earn toward graduation any additional courses in the College of Administration and Business beyond the requirement for the Economics major.

REQUIREMENTS FOR BUSINESS MINORS FOR STUDENTS ENROLLED IN OTHER TECH COLLEGES

Students enrolled in other colleges may not take a major in any area in the College of Administration and Business except economics. This statement means that no student of another college may take for degree credit any combination of courses in the College of Administration and Business whether called a minor or electives or a combination thereof, in excess of a total of 27 semester hours.

Business Foundation Minor. This minor is designed for those students in fields other than those offered in the College of Administration and Business who may want to enter the graduate program to earn a Master of Business Administration (MBA) degree. (See MBA program in the graduate section of the catalog for a description of this degree program.)

There has been a substantial demand for graduates with the MBA degree who specialized in another field in their undergraduate programs. These graduates have a specialized degree or a broad liberal arts degree outside of business and have also acquired a knowledge of business functions with emphasis on administration or management. The demand by industry has been particularly heavy for MBA graduates with

undergraduate programs in mathematics, science and engineering, but the demand also exists for MBA graduates having social sciences and other liberal arts undergraduate majors.

Students interested in this minor should elect 21 hours from among the following courses (more may be taken if desired up to a maximum of 27 hours of courses); Accounting 203, 204, 205, or 203, 204, 210; Business Law 355; Quantitative Analysis 220, 233, 333; Economics 215; Finance 318; Management 311, Marketing 300.

Minor in Accounting: Accounting 203, 204, 205, 303, 304, 305, 307, 308, 411, 412, and 413; total 27 semester hours. Students in other colleges may not major in accounting.

Minor in Business Data Processing, including Statistics. Quantitative Analysis 220, 233, 333, 338, 339, 435; and three hours from 400 level Quantitative Analysis courses to complete 21 semester hours.

Minor in Economics. Economics 201, 202, 312; and 12 hours of Economics courses at the 300 and 400 level, to complete 21 semester hours.

Minor in Finance, including Insurance and Real Estate. Economics 215; Accounting 203, 204, 210; Finance 318; and nine other hours of Finance courses to complete 22 semester hours.

Minor in General Business. Accounting 203, 204, 210; Economics 215; Finance 318; Management 311; Marketing 300; and a 3 hour CAB elective to complete 22 semester hours.

Minor in Management, including Personnel and Industrial Management. Management 311; and 18 hours from 300 and 400 level Management courses to complete 21 semester hours.

Minor in Marketing. Marketing 300; and 18 hours from 300 and 400 level Marketing courses to complete 21 semester hours.

Minor in Office Administration. Office Administration 201, 202, 203, 206, 207, 303, 304, 307, and 309. A student who is exempt from 201 would take a total of 22 hours rather than a total of 24 hours.

UNDERGRADUATE PROGRAMS

ASSOCIATE DEGREE PROGRAMS

The objectives of two-year associate degree programs are: (1) to permit students to continue their educational development in a university-level climate; (2) to provide a curriculum of both general education and general and specific business knowledge appropriate to persons planning to take functional and trainee positions in government and industry; (3) to provide a meaningful termination point for students desiring only two years of college; and (4) to facilitate the present or future continuation of the associate degree students' education toward the baccalaureate degree.

SECRETARIAL CURRICULUM

There is a four-year bachelors degree office administration program discussed later. This two-year associate of science program has two options-secretarial option (shorthand) and information-word processing option (non-shorthand). Both seek: (1) to prepare students who wish to qualify for office positions, such as secretary, word processing specialist, word processing supervisor, records administrator, and the like, in large and small commercial, governmental, and industrial organizations; (2) to permit students to apply most of the credits earned toward the four-year office administration program should they choose to continue their education to prepare for additional, challenging career opportunities. For the course requirements of the two options of the Secretarial

Curriculum, see the Division of Basic and Career Studies section of the bulletin.

BUSINESS TECHNOLOGY CURRICULUM

The primary objective of the program is to provide an educational alternative for students who desire, and need for their intended careers, basic education beyond high school, but less than a four-year college program, and some practical knowledge to help prepare them for job entry and possible advancement opportunities. For degree and course requirements, see the Division of Basic and Career Studies section of the bulletin.

BACHELOR DEGREE PROGRAMS

Five baccalaureate degree curricula are offered by the College of Administration and Business: Accounting; Business Administration (with several options or specialties available from the Business Department); Business Economics; Finance; and Office Administration. The course requirements for these four-year programs are given in the following pages. (Note: The five curricula are given in alphabetical order with several pages of options being listed after the Business Administration curriculum. By special permission of the Dean, students may be approved for a special option in a non-CAB field. A written statement listing courses and justifying the proposed option must be submitted by the student to the Dean for consideration.)

All five of the baccalaureate degree programs have the following objectives: (1) to assist students to prepare personally and professionally for future roles as citizens and leaders in a complex, changing society by providing a broad education, including a background in the liberal arts and natural and social sciences; (2) to encourage students to develop their individual capabilities and the incentive for continued future learning, self-improvement, and advancement by requiring personal discipline, industry, and high-level performance; and (3) to provide an educational background sufficient for the needs of those students who are interested in, and qualified for, pursuing studies at the post baccalaureate level. Additional specific objectives are given at the beginning of each of the four-year curricula.

BASIC B.S. FRESHMAN CURRICULUM

This basic curriculum is required of all bachelor of science degree students who enter the College of Administration and Business. Freshman year requirements for associate degrees are given in those curricula. Students enrolling in CAB programs who have already decided what curriculum or major they wish to pursue may designate that curriculum when they register. Students who have not definitely decided what curriculum they wish to pursue should write "BA-Basic" after the word "Curriculum" on the registration form.

Freshman Year	Semester Hours
Economics 100 or 200.....	3
English 101, 102.....	6
Management 105†.....	3
Mathematics 110, 125 or 111, 222.....	6
Office Administration 205*.....	2
Political Science 201.....	3
Science Elective.....	3
Social Studies Elective.....	3
Sociology 201.....	3

TOTAL SEMESTER HOURS32

†Students having ACT composite standard scores of 25 or higher may choose not to take Management 105. Instead, they may begin their second year courses sooner. Later they will take a 300 or 400 level CAB elective to satisfy the Management 105 semester hours skipped.

*Office Administration majors will take Office Administration 202 in lieu of 205.

Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 110 and 125 will satisfy the mathematics requirement for most College of Administration and Business programs, students may choose to take 111 and/or 222 instead of, or in addition to 110 and 125. Liberal education electives may be used for such additional math courses. (Note: The Management Science and Industrial Management options require Mathematics 222 or the equivalent.)

Students having approximately a year of typing in high school are usually ready to take Office Administration 202 and 205. Students who have never had typing will need to take Office Administration 201 prior to taking 202 and 205. The semester hours for Office Administration 201 will not count in the hours required for a degree.

See "Elective System in CAB."

Some students may take more, and some students may take less, than this number of hours the first year, depending on extracurricular activities, educational background, and so forth.

ACCOUNTING CURRICULA

The School of Professional Accountancy offers a four-year accounting program leading to the Bachelor of Science (B.S.) degree and a five-year accounting program leading to the Master of Professional Accountancy (M.P.A.) degree.

Each of these curricula provides a thorough education in the accounting discipline. This specialized accounting knowledge, together with the broad liberal arts, sciences, and business background, is designed to prepare students: (1) for advanced studies in accounting or business; (2) to take appropriate trainee and managerial positions in government and various types of business organizations; (3) to provide the basis for future growth and development within the accounting profession; and (4) to provide the educational foundation for future advancement to general administrative and leadership positions.

The accounting profession is one of the most rapidly growing professions in the country. Transfer students electing this curricula will be required to take at least fifteen semester hours (all at the 500 level for the M.P.A.) in accounting courses numbered 400 and above at Louisiana Tech.

ACCOUNTING CURRICULUM

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum.....	32
Sophomore Year	
Accounting 203, 204, 205	6
Economics 201, 202.....	6
English 201 or 202.....	3
Liberal Education Elective	6
Liberal Education or Science Elective	1
Psychology 102.....	3
Quantitative Analysis 220.....	3
Science Elective	3
	31
Junior Year	
Accounting 303, 304, 305, 307, 308	12
Business Law 355, 356.....	6
Finance 318	3
Management 311	3
Marketing 300	3
Quantitative Analysis 233, 333	6
	33

Senior Year	
Accounting 411, 412, 413	9
Accounting Electives	6
Economics 312.....	3
Management 495	3
Office Administration 305.....	3
Speech 377	3
Restricted Electives	6
	33

TOTAL FOR CURRICULUM..... 129

See "Elective System in CAB"

Restricted electives: select six semester hours from Mathematics 222; Quantitative Analysis 339, 422, 430.

While the traditional four-year program gives adequate training for certain accounting areas, it is recognized that in many cases the profession needs individuals with additional formal education. Consequently, to supply this need, the School of Professional Accountancy offers a five-year accounting program leading to a Master of Professional Accountancy degree.

PRE-PROFESSIONAL CURRICULUM

Year One	Semester Hours
Economics 200.....	3
English 101, 102.....	6
Liberal Education Electives.....	6
Mathematics 111, 222.....	6
Office Administration 202.....	(2)
Political Science 201	3
Science Elective	3
Social Studies Elective.....	3
Sociology 201	3
	33
Year Two	
Accounting 203, 204, 205.....	6
Economics 201, 202.....	6
English 201 or 202 and 336.....	6
Psychology 102.....	3
Quantitative Analysis 220, 233, 333	9
Science Elective	3
	33

ADVANCED PROFESSIONAL CURRICULUM

Year Three	Semester Hours
Accounting 303, 304, 305, 307, 308	12
Economics 312, 408.....	6
Finance 318	3
Management 311	3
Marketing 300	3
Office Administration 305.....	3
Speech 377	3
	33
Year Four	
Accounting 312, 406, 411, 412, 413	15
Business Law 355, 356.....	6
CAB Electives.....	6
Finance 414	3
Quantitative Analysis 339.....	3
	33

Year Five	
Accounting 506 or 507, 508, 517, 521, 541	15
Accounting Electives	6
Economics 510.....	3
Finance 515	3
Management 521	3
Quantitative Analysis 525.....	3
	33
TOTAL FOR CURRICULUM.....	165

In the first four years of this program, a grade of D in any accounting course must be repeated immediately.

See "Elective System in CAB."

Must be able to pass the proficiency exam or show credit for Office Administration 202 (Typewritten Communications).

In the fifth year of this program, any grade less than a C in any accounting course must be repeated immediately or offset by an A in a subsequent accounting course.

ADVANCED PROFESSIONAL ACCOUNTANCY PROGRAM REQUIREMENTS AND ADMISSION POLICIES

Students pursuing the five-year curriculum leading to the Master of Professional Accountancy degree should begin pursuing the two-year Pre-Professional Accountancy curriculum at the beginning of their freshman year.

Students following the five-year curriculum which leads to the Master of Professional Accountancy degree will be eligible to apply for admission to the Advanced Professional Accountancy Program when they have completed all requirements of the Pre-Professional Accountancy Program.

In evaluation of the applications for admission to the Advanced Professional Accountancy Program, consideration will be given to such things as grade point averages, grade trends, and areas of scholastic strength. Only students who have demonstrated exceptional academic performance will be admitted into the Advanced Professional Accountancy Program. Judgment is exercised since admission decisions involve consideration of qualitative as well as quantitative factors. Some of these considerations are: grades in specific college courses, total quality and quantity of prior college preparation, apparent maturity and seriousness of purpose.

Students not meeting the requirements for admission in the Advanced Professional Accountancy Program may, subject to the director's approval, continue to schedule courses required in the Advanced Professional Accountancy curriculum and attempt to meet the requirements for formal admission into the program for a specified period of time.

Students pursuing the M.P.A. degree may be formally admitted to the Graduate School at the completion of their fourth year of study even though they do not hold a bachelor's degree. In addition to other Graduate School and the College of Administration and Business admission requirements which must be met by all masters level students, students pursuing the M.P.A. degree must meet any additional requirements of the School of Professional Accountancy before entering the graduate phase of their studies.

The foregoing are general statements on admissions policies. The complete current statement of admission scholastic requirements and other program requirements may be obtained upon request to the School of Professional Accountancy director's office. Students and prospective students are

advised of their obligation to secure from the director's office program information and advice on meeting all program requirements.

BUSINESS ADMINISTRATION CURRICULUM

The Business Administration Curriculum is structured to: (1) provide the broad education students will need for flexibility and mobility as future administrators in various possible types of organizations; (2) permit students to elect to complete the program in general business, thereby tailoring part of the basic program to individual educational objectives; (3) permit students to elect one of several available options (moderate specialties) to assist them in more adequately fulfilling the requirements of their planned initial employment; and (4) prepare students for advanced studies in their chosen fields.

The modern age with its rapid changes has made it essential that the future business man and woman be broadly educated in order to adjust and adapt themselves to changing methods. Furthermore, it has been found that many students move out of their college specialty after entering business. Therefore, it is desirable to their future development that they receive training in all of the staff and functional areas of business. In this way, they will be prepared to take full advantage of opportunities that present themselves.

However, a specialty may be desirable as an entree or door into the business world. Therefore, a number of specialties are provided in the business administration program. These specialties are called options. The student may select an option at any time but should normally have chosen it by the beginning of the junior year.

Freshman Year Semester Hours
See Basic B.S. Freshman Curriculum.....32

Sophomore Year	
Accounting 203, 204, 210	7
Economics 201, 202.....	6
English 201 or 202.....	3
Liberal Education Electives.....	6
Psychology 102.....	3
Quantitative Analysis 220.....	3
Science Elective	3
	31

Junior Year	
Business Law 355	3
CAB Elective	3
Economics 312.....	3
Finance 318	3
Free non-CAB Elective	3
Management 311	3
Marketing 300	3
Office Administration 305.....	3
Option Elective	3
Quantitative Analysis 233, 333.....	6
	33

Senior Year	
CAB Elective	3
Management 495	3
Option Electives	15
Restricted Electives	6
Speech 377	3
	30

TOTAL FOR CURRICULUM..... 126
See "Electives System in CAB"

The three semester hours of Option Electives in the junior year plus the fifteen semester hours of Option Electives in the senior year permit the student to select one of the several options (specialties) shown on the following pages. These options are offered by the Business Department.

See each option for course requirements and any additional requirements (e.g., certain mathematics or science courses to be taken as electives.)

See each option for the courses listed as restricted electives.

OPTIONS OFFERED DEPARTMENT OF BUSINESS

BUSINESS DATA PROCESSING OPTION

This group of courses is primarily designed to prepare students for careers in data processing, for work directly in computing centers or data processing departments of business and government, and for work in business systems design and analysis. It will provide students with an understanding of the analysis of business data; a knowledge of the techniques and methods of utilizing data; a basic competence in computer programming; and a familiarity with computers and peripheral equipment.

Students interested in business data processing will normally elect the following courses in this option.

Semester Hours	
Quantitative Analysis 338, 339, 435	9
Finance 422, Management 480;	
Marketing 435; Quantitative Analysis 422, 436 (any nine hours)	9

TOTAL..... 18

Restricted CAB Electives in the senior year:

Accounting 308; Economics 409, 437;	
Marketing 482; Quantitative Analysis 430, 432, 433 (any six hours)	6

BUSINESS MANAGEMENT OPTION

This option extends the requirement of the Business Administration Curriculum further in the direction of general business management. Students who take this option will logically seek management trainee positions in business or industrial enterprises. The following courses will normally be elected to satisfy this option.

Semester Hours	
Management 470, 475	6
Management Electives (approved 300-400 level Management Courses)	6
Marketing 482	3
Quantitative Analysis 430	3

TOTAL..... 18

Restricted CAB Electives in the senior year:

Business Law 445; Economics 409; Marketing 425; Quantitative Analysis 435; (any six hours)	6
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GENERAL BUSINESS ADMINISTRATION OPTION

The Business Administration Curriculum provides the student with a broad education in business administration including courses in the fields of accounting, economics, business finance, marketing, management, business law, and quantitative analysis. This general concept of broad business administration is extended into the G.B.A. option to include an additional 18 hours of broad education for business. A course in each of two additional fields is required. These fields are insurance and real estate. One additional course is required to be selected from the fields of marketing or management, and

the student is permitted to elect three additional courses in the College of Administration and Business.

Small Business is a significant part of our business way-of-life; it includes about 95 per cent of all business firms which provide about half the economic activity in the U.S. and about half the job opportunities in the private sector of the economy. By carefully selecting CAB electives the student is able to prepare for entry into a family-owned business or to begin preparation for eventually starting or buying a business. To emphasize Small Business Management, the student should select from these courses the CAB electives: Business Law 441; Marketing 435, 482; Management 340, 470; and Economics 409.

Semester Hours

Finance 330	3
Business Law 441 or Finance 442 or 443	3
Marketing 320 or 425 or Management 446 or 465	3
CAB Electives.....	9

TOTAL..... 18

Restricted CAB Electives in the senior year:

Business Law 445; Economics 409 or 437; Management 447; Marketing 482; Quantitative Analysis 430.....	6
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See "Electives System in CAB"

INDUSTRIAL MANAGEMENT OPTION

This option is designed to fill a growing demand for business graduates with sufficient technical background to cope with modern management problems in business and industry. The graduate in this curriculum is qualified for employment in production planning and control, quality control, methods analysis, materials management, and related areas in service industries. The option elective courses normally to be taken are listed below:

Semester Hours

Industrial Engineering 409	3
Management 475, 476	6
Quantitative Analysis 338, 430	6
Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 339, 422, 432 (any three hours)	3

TOTAL..... 18

Restricted CAB Electives in the senior year:

Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 339, 422, 432 (any six hours) ...	6
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Additional specific requirements for the Industrial Management Option are:

Mathematics 110, 125 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective (s).

Six approved semester hours in physics or chemistry are required. These courses may be taken as either science electives or liberal education electives.

MANAGEMENT SCIENCE OPTION

This option is for students who desire special training which will prepare them for positions involving quantitative methods in management decision making utilizing mathematics, business statistics, and electronic data processing.

The steadily increasing importance of management science in such areas as government, industry, and education and the rapid growth in the theory and application of management science methods to the management decision making process

underscore the desirability of electing this program. This option also particularly prepares one for pursuing the management science specialty in the Master of Business Administration program.

Listed below are the option courses normally to be taken to complete this program.

	Semester Hours
Quantitative Analysis 430, 432, 433	9

Select nine hours from:

Quantitative Analysis 435, 436; and no more than six of the nine hours from Quantitative Analysis 338, 339, 422

TOTAL	18
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Restricted CAB Electives in the senior year:

Accounting 308; Economics 409, 437; Finance 422; Marketing 482 (any six hours)

Additional specific requirements of the Management Science Option are:

Mathematics 110, 125 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective (s).

MARKETING OPTION

In the past three decades marketing has become the focal point of many business operations. Since approximately one-third of the country's work force is engaged in some form of marketing activity, the institutions of manufacturing, wholesaling, retailing, and service offer outstanding opportunities for rapid career advancement into high paying positions. The Marketing Option is designed to help prepare individuals for a wide range of possible positions in this exciting field. These positions include retailing, advertising, sales and sales management, wholesaling, product development, and marketing research. The option provides the student with a sound body of knowledge pertaining to marketing principles, decision-making, and practices. It should afford the student with the opportunity for flexibility in career choices. The courses to be taken to satisfy this option are as follows:

	Semester Hours
Marketing 473, 482	6

Twelve additional hours to be selected from: Marketing 307, 320, 420, 425, 435, 485

TOTAL	18
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Restricted CAB Electives in the senior year:

Economics 409 or 437; Business Law 445 or Management 470; Quantitative Analysis 430, 432, or 433

For students interested in Marketing Research, Mathematics 222 is highly recommended. Likewise, Quantitative Analysis 432 or 433 is recommended as the restricted elective in the senior year for those interested in research.

PERSONNEL MANAGEMENT OPTION

This option is designed for students who are interested in human resource management, often referred to as personnel management, and industrial relations. Students planning to take this option should use some of their liberal education electives to take additional work in the behavioral sciences such as industrial psychology, cultural anthropology, and industrial sociology. The option courses normally to be taken are as follows:

	Semester Hours
Economics 419	3
Management 447, 470, 472	9

Management Electives (300 and 400-level Management courses)	6
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TOTAL	18
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Restricted CAB Electives in the senior year:

Economics 409, 418; Finance 431; Marketing 482 (any six hours)

PRE-LAW OPTION

The work of successful lawyers has come to be more and more associated with the rendering of opinions and counsel on business matters such as banking, insurance, real estate titles, business contracts, etc. Corporations employ many lawyers full time for their contract and other legal work, and the young lawyer who has a degree in business will be at a distinct advantage in obtaining and doing such work.

IMPORTANT: Each law school determines its own requirements, such as admission criteria, number and type of semester hours required for entrance, etc. Students planning to enter a law school should be in communication with that school shortly after coming to college to insure the program they take will meet all requirements of the law school the student plans to attend.

Students who elect this option will finish all requirements for the Bachelor of Science degree before they enter law school.

	Semester Hours
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Business Law 356	3
Business Law 441, 445 or Management 447 (any two)	6
Approved CAB elective	3
Political Science 302 or 318 (or approved CAB elective)	3
Speech 200 or other approved speech elective	3

TOTAL	18
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Restricted CAB Electives in the senior year:

Accounting 307; Economics 409, 410, or 437; Finance 414 or 442

A growing number of law schools require a Baccalaureate degree for admission. However some law schools still admit after three years of college. Students wishing to select the three-year option approach are advised to take the first three years of Business Administration Curriculum after verifying acceptance by the law school on this basis.

Under the three year option, the student finishes the first three years of the Business Administration Curriculum, plus Management 495 and Speech 377, and then enters law school. After finishing one full year of law school, making at least a C average on net hours earned there, the student may have transferred back to Louisiana Tech the law credits and with a combined minimum total of 126 semester hours credit receive the Bachelor of Science degree. CAB senior year residence requirements apply to the junior year of this program. Only the first bachelors degree may be earned in accordance with these requirements, which must be met precisely.

BUSINESS ECONOMICS CURRICULUM

Economics majors are employed in all sectors of the economy—government, industry and finance, and nonprofit organizations. In addition, undergraduate training in economics is an ideal major for those contemplating continuing their formal education in public administration, general business administration, or law.

The use of economists in all areas of the economy has expanded rapidly in the past and is expected to continue in the future. Business economists perform a wide variety of tasks for governmental agencies and private organizations—such as as

statistical and general research, pricing and marketing, financial analysis, economic regulation, and forecasting business conditions.

To function effectively, the business economist must have both a knowledge of theory and an understanding of economic and business facts and institutions. Although not all economists specialize in statistical or mathematical analysis, an adequate knowledge of mathematics is usually required. Students can also broaden their training by combining their economics major with other areas of their interest.

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum.....	32

Sophomore Year	
Accounting 203, 204, 210	7
Economics 201, 202	6
English 201 or 202	3
Liberal Education Electives	6
Psychology 102	3
Quantitative Analysis 220	3
Science Elective	3
	31

Junior Year	
Business Law 355	3
CAB Elective	3
Economics 312, 408	6
Finance 318	3
Free non-CAB Elective	3
Management 311	3
Marketing 300	3
Office Administration 305	3
Quantitative Analysis 233, 333	6
	33

Senior Year	
CAB Electives	12
approved by advisor	
Economics Electives (approved by advisor)	9
Economics 437	3
Management 495	3
Speech 377	3
	30

TOTAL FOR CURRICULUM	126
See "Electives System in CAB"	

FINANCE CURRICULUM

The Finance Curriculum provides students with the background to enter a variety of financial fields. The Finance Curriculum is designed for students who have an interest in financial management (including financial position analysis, working capital management, funds acquisition and capital investment analysis), commercial banking, securities analysis, insurance, and real estate. The curriculum combines a liberal arts foundation and an in-depth coverage of business subjects as well as specialized knowledge in a variety of financial topics.

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum.....	32
Sophomore Year	
Accounting 203, 204, 210	7
Economics 201, 202	6
English 201 or 202	3
Liberal Education Electives	6
Psychology 102	3

Quantitative Analysis 220	3
Science Elective	3
	31

Junior Year	
Economics 312	3
English 332 or 336	3
Finance 318, 319	6
Management 311	3
Marketing 300	3
Office Administration 305	3
Quantitative Analysis 233, 333	6
Speech 377	3
	30

Senior Year	
Business Law 355	3
CAB Electives	12
Finance Electives	9
Finance 414, 425	6
Management 495	3
	33

TOTAL FOR CURRICULUM	126
See "Elective System in CAB"	

For students interested in various specialty areas of finance, specific courses are suggested for the finance electives as follows: Managerial Finance: Finance 422, 430, and 412 or 427

Banking and Investments: Finance 422, 430, and 412

Insurance: Finance 330, 431, and 432 or 433

Real Estate: Finance 442, 443, and 444

OFFICE ADMINISTRATION CURRICULUM

The Office Administration Curriculum combines the general education in the liberal arts and sciences and business with rigorous specialized study to provide students with the foundation for: (1) advanced study in the field; (2) entry or promotion into executive assistant positions; and (3) future supervisory and administrative positions in the secretarial and office manager areas.

Graduates will be prepared to assume executive secretarial and administrative duties for top-level executives or persons responsible for a major functional area or segment of the organization. The shortage of college-educated administrative support personnel is acute, and those prepared for such positions are assured of excellent positions and an opportunity for advancement to supervising and executive-type positions.

Transfer students electing this curriculum will be required to take at least the last term of the shorthand sequence at this institution regardless of the amount of credit earned elsewhere, unless excused on the basis of an examination by the curriculum advisor.

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum.....	32
Sophomore Year	
Economics 201, 202	6
English 201 or 202	3
Free Non-CAB Elective	3
Liberal Education Elective	3
Office Administration 203, 206, 207	8
Psychology 102	3
Quantitative Analysis 220	3
Science Elective	3
	32

Junior Year	
Accounting 203, 204, 210	7
Business Law 355	3
Management 311	3
Office Administration 303, 304, 305, 307	12
Quantitative Analysis 233, 333	6
	—
	31
Senior Year	
CAB Elective	6
Economics 312	3
Finance 318	3
Liberal Education Elective	3
Management 495	3
Marketing 300	3
Office Administration 309, 310, 480	8
Speech 377	3
	—
	32
TOTAL FOR CURRICULUM	127
See "Electives System in CAB"	

BUSINESS EDUCATION CURRICULUM

The Business Education Curriculum and the education courses required in it are offered by the College of Education and will be found in the College of Education's section of the

catalog. This program is designed to educate future business teachers for the secondary level. Students in the curriculum are enrolled in the College of Education but take their business and economics courses from the College of Administration and Business.

GRADUATE PROGRAMS

MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration (MBA) degree is offered by the College of Administration and Business. Employment and doctoral-level studies opportunities are excellent for MBA graduates. Students may enter the program from baccalaureate programs either in business or non-business fields. For admissions, curriculum, and other information, consult the Graduate School section of the Bulletin.

MASTER OF PROFESSIONAL ACCOUNTANCY

The Master of Professional Accountancy (MPA) is offered by the College of Administration and Business. For admissions, curriculum, and other information see the earlier listing under the Professional Accounting Program and consult the Graduate School section of the Bulletin.

DOCTORAL PROGRAM

The Doctor of Business Administration (DBA) degree is offered by the College of Administration and Business. The requirements of the program are given in the Graduate School section of the Bulletin.

College of Arts and Sciences

OFFICERS OF INSTRUCTION

PAUL J. PENNINGTON, Dean
PATTERSON B. MOSELEY, Associate Dean; Director, Division of Research; Director, Division of Health Sciences.
KENNETH W. REA, Director of Graduate Studies
JOHN C. TRISLER, Head, Department of Chemistry
S. S. KILGORE, Program Director, Medical Technology
LOU H. STEBBINS, Program Director, Medical Records Administration
JOSEPH W. STROTHER, Director, School of Art and Architecture
PETER SCHNEIDER, Head, Department of Architecture
ROBERT C. SNYDER, Head, Department of English
RICHARD L. EZELL, Head, Department of Foreign Languages
WILLIAM Y. THOMPSON, Head, Department of History
WILEY W. HILBURN, JR., Head, Department of Journalism
B. J. ATTEBERY, Head, Department of Mathematics and Statistics
RAYMOND G. YOUNG, Head, Department of Music
WILLIAM H. BRUMAGE, Head, Department of Physics
A. L. MILLER, Head, Department of Professional Aviation
WILLIAM J. CONWAY, Head, Department of Social Sciences
GUY D. LEAKE, JR., Head, Department of Speech

PURPOSE

The purposes of the College of Arts and Sciences may be stated as follows: (1) to provide traditional and general education for those who desire this. (2) to offer the core courses common to many curricula of the college, such as English, mathematics, foreign languages, and social sciences; (3) to provide pre-professional training for those students who intend to study dentistry, law, medicine, or pharmacy; (4) to assist in the preparation of prospective teachers who desire to major in and teach such subjects as art, English, foreign languages, mathematics, music, natural science, social science, and speech; (5) to provide specialized training for vocations in such fields as aviation, chemistry, commercial art, journalism, medical record administration, medical technology, music and social welfare; and (6) to provide graduate training leading toward various graduate degrees.

In general, students in the College of Arts and Sciences become acquainted with the main fields of intellectual interest and in addition acquire, through their major study, a thorough knowledge of some special field. Thus, a student may obtain a liberal education, which will prove invaluable as preparation for a business or professional career as well as for richer and better living.

SCHOLARSHIPS

Scholarships are available in the College of Arts and Sciences. Information concerning scholarships may be obtained in the Office of the Dean of Arts and Sciences.

DEPARTMENTS AND CURRICULA

The College of Arts and Sciences includes the School of Art and Architecture, and the departments of Chemistry, English, Foreign Languages, History, Journalism, Mathematics, Music, Physics, Professional Aviation, Social Sciences, and Speech.

It offers curricula leading to the regular degrees of Bachelor of Arts, Bachelor of Fine Arts, and Bachelor of Science in a special subject. The College of Arts and Sciences also has Divisions of Research, Health Sciences (Medical Technology, Medical Record Administration) and Graduate Studies.

Students who satisfactorily complete the first year of work in an accredited dental, law, medical, or medical technology school and who have previously finished the prescribed pre-professional curriculum in dentistry, law, medical record administration, medical technology, or medicine at Louisiana Tech University, may receive the bachelor's degree from this institution provided the usual academic standards have been maintained.

SUBJECTS OF INSTRUCTION

The subjects of instruction in the College of Arts and Sciences are advertising art, architecture, art, chemistry, English, French, geography, German, history, honors, interior design and photography, Italian, journalism, mathematics, medical record administration, medical technology, music, philosophy, physics, political science, Portuguese, professional aviation, Russian, sociology, Spanish and speech, as well as the "General Studies" curricula.

REQUIREMENTS FOR GRADUATION

Candidates for graduation in the College of Arts and Sciences must have completed an approved curriculum, including a major subject and one or more minor subjects, and must have an average grade of C or better on all course credits earned. The required minor subject must be chosen with the approval of the student's advisor before the first quarter of the junior year. Twenty-one semester hours of credit are required for a minor.

Physical education requirements are to be met through physical education activity courses, or through equivalent participation in the United States Air Reserve Officers Training Corps program, or through military service. Not more than four semester hours of physical education activity courses will be counted toward degree requirements.

Foreign language requirements are met through completion of the second year program in a language. Ordinarily, this will mean that four courses in one language will be taken in sequence.

Basic mathematics requirements for students majoring in mathematics or science call for Mathematics 111 and 112; other students may substitute Mathematics 107, 108, and 109, or 110.

GRADUATE PROGRAMS

Graduate degrees offered by the College of Arts and Sciences are as follows:

Master of Arts (Curricula available as follows:) English, History, Music, Speech, Speech Pathology, and Audiology; Master of Fine Arts; Master of Science (Curricula available as follows:) Chemistry, Mathematics, and Physics

For admissions, curriculum, and other information, consult the Louisiana Tech University Graduate School section of this catalog.

DIVISION OF HEALTH SCIENCES

The Division of Health Sciences in the College of Arts and Sciences was organized to promote and encourage education for the health care delivery system.

Baccalaureate degrees are offered in Medical Technology and Medical Record Administration. These degrees require four years of study including internship.

MEDICAL RECORD ADMINISTRATION

The Medical Record Administrator is the professional responsible for the management of health information systems consistent with the medical, administrative, ethical and legal requirements of the health care delivery system.

High school students planning to enter the Medical Record Administration Program should take the general college preparatory courses and acquire a proficiency in typing.

The students are required to take the Allied Health Professions Admission Test. This test should be taken during the sophomore year. Students transferring into the program at an advanced level should take the test the first time it is offered after their acceptance in the program.

The Medical Record Administration program requires eleven quarters of study on the campus plus two quarters off campus. The campus studies are complemented by directed experience in a hospital designated as the primary directed practice site. This is a closely supervised learning experience in an operating medical record department.

To be eligible to register for primary directed practice experience the student must have an overall GPA of no less than 2.0 and a Louisiana Tech University cumulative GPA of no less than 2.0 and have no grade in required courses less than a C.

The two quarters preceding graduation are spent in off campus affiliations during which time the student will gain experience in a variety of health care organizations. These experiences may be clustered in the Shreveport or Monroe areas. There are additional sites in other cities in Louisiana, Texas, Mississippi and Arkansas for students who are able to spend a short period of time in these areas. Each student affiliation experience is individually planned with the student to fulfill the educational requirements within the students' financial and travel limitations. These affiliation experiences will be scheduled on recommendation of a committee of Medical Record Administration faculty for students who have:

1. Completed all course work on campus.
2. Have no grade in required courses less than a C.
3. Have an overall GPA no less than 2.0.

The student will return to the Tech campus for a Medical Record Seminar for two weeks prior to graduation.

A student wishing to minor in Medical Record Administration may do so by declaring this intention to the Medical Record Administration advisor and by completing the required courses in the Medical Record Administration program curriculum.

The Medical Record Administration Program is accredited by the Committee on Allied Health Education and Accreditation in collaboration with the American Medical Record Association. Graduates of the program are eligible to apply to write the registration examination of the American Medical Record

Association for the designation RRA - Registered Record Administrator. This program leads to the Bachelor of Science Degree.

MEDICAL RECORD ADMINISTRATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Math 107, 108, 109.....	6
Zoology 111, 112.....	4
Health and Physical Education.....	2
Medical Record Science 100, 103‡.....	4
Psychology 102.....	3
Elective (minor).....	6
	31

Sophomore Year	
Medical Record Science 203, 280.....	7
English 201, 202.....	6
Zoology 225, 226.....	4
Quantitative Analysis 220.....	3
Sociology 201.....	3
Bacteriology 212.....	4
Electives (science).....	4
Health and Physical Education.....	2
	33

Junior Year	
Medical Record Science 301‡, 302, 303‡, 304, 305‡, 309, 310.....	14
Speech 377.....	3
Management 311.....	3
Elective (minor).....	11
Elective (statistics).....	3
	34

Senior Year	
Medical Record Science 401‡, 403‡, 404, 405, 406, 407, 408, ‡ 412, ‡ 490.....	25
Office Administration 480.....	3
Quantitative Analysis 435.....	3
Elective (minor).....	3
	34

TOTAL SEMESTER HOURS 132

Before choosing electives, all students must get the approval of a minor from their advisor and complete the minimum requirements for hours in the minor subject.

In choosing an elective science, it is to be remembered that this science must be one which contributes to understanding the human body and its disease processes. A minimum of one of the four hours is to be earned in a laboratory course.

The choice of a statistics course will depend on the minor the student has elected.

‡Required courses for a minor in Medical Record Administration.

MEDICAL TECHNOLOGY

The medical technologist needs a thorough background in chemistry, biology and physics. The major portion of the work consists of performing tests on the blood and body fluids using automated methods. The Bachelor of Science Degree requires 129 or 130 semester hours with the following distribution:

Humanities, 25 semester hours

Prerequisite science courses, 34 semester hours

Advanced sciences and technical courses, 40 or 41 semester hours

Clinical training in one of our C.A.H.E.A. approved affiliate hospitals* during the senior year, at least 30 semester hours. (The student will register at Louisiana Tech each quarter and will pay fees.)

After completion of the clinical year, the student is awarded a Bachelor of Science degree in Medical Technology and is eligible for ASCP registration after passing the registry examination.

*MEDICAL TECHNOLOGY CLINICAL TRAINING SITES:

Alton Ochsner Medical Foundation, New Orleans, LA
Baylor University Medical Center, Dallas, TX.
Lake Charles Memorial Hospital, Lake Charles, LA
LSU Medical Center, Shreveport, LA
Our Lady of the Lake Medical Center, Baton Rouge, LA
Rapides General Hospital, Alexandria, LA
St. Francis Cabrini Hospital, Alexandria, LA
St. Francis Medical Center, Monroe, LA
St. Patricks Medical Center, Lake Charles, LA
Schumpert Medical Center, Shreveport, LA
Veterans Administration Hospital, Shreveport, LA

MEDICAL TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102.....	6
Mathematics 111 or 230, 112 or 231.....	6
Medical Technology 110	1
Bacteriology 212	4
Zoology 111, 112	4
Medical Record Science 103	3
	32
Sophomore Year	
English 201, 202.....	6
Zoology 115, 116	4
Zoology 202 or Bacteriology 406.....	4
Chemistry 250,251,252	6
Chemistry 253, 254	2
Foreign Language	6
Medical Technology 245, 341.....	6
	34
Junior Year	
Medical Technology 242, 346, 448, 449, 452	10
Chemistry 351, 352, 353, 354	8
Zoology 401	3
Social Science.....	6
Physics 209, 210, 261, 262	8
	35
Senior Year	
The student and Program Director will choose at least 30 semester hours from Medical Technology courses numbered 460 through 482.....	30
	30
TOTAL SEMESTER HOURS	131

PRE-OPTOMETRY

At the request of the Louisiana State Association of Optometrists, it is called to the attention of the interested student that the present offerings of Louisiana Tech University enable any

student to earn the credits necessary to satisfy the pre-optometry curriculum requirements of the professional optometry schools. In general, these requirements are as shown below, but specific correlation should be made with the professional school one expects to attend.

Subject	Minimum Semester Hours Credit
English 101, 201, 202.....	9
Mathematics 111, 112, 230, 231.....	12
Zoology 111, 112, 115, 202	12
Botany 101	4
Bacteriology 210, 406.....	7
Chemistry 101, 102, 103, 104, 250, 251, 253.....	13
Physics 209, 210, 261, 262	8
Psychology 102, 300.....	6
Sociology 201	3
BioChemistry 351, 352, 353, 354	8
History 201, 202.....	6

HOURS REQUIRED88

DEGREE IN GENERAL STUDIES

If a student wishes to follow a generalized curriculum, the student may pursue a major in General Studies and a concentration (or concentrations) in a specific discipline (s). The curriculum must be approved by the dean of the College of Arts and Sciences and must consist of a total of not less than 126 semester hours. Students pursuing a degree in General Studies may take no more than 27 hours of business courses.

While pursuing the General Studies Curriculum the student will be registered in the College of Arts and Sciences, and upon completion of all requirements he will be granted the degree of Bachelor of Arts, a Liberal Arts and Sciences degree, upon recommendation of the Dean of the College of Arts and Sciences.

A student may earn an Associate of Arts degree, a Liberal Arts and Sciences degree, by completing the following courses: English 101 and 102, six semester hours; mathematics, three semester hours; social science elective, six semester hours; natural science elective, six semester hours; general electives, twenty-seven semester hours; and a concentration of 15 semester hours in a subject matter field approved by the Dean of the College of Arts and Sciences. Total semester hours in the curriculum - 63.

SCHOOL OF ART AND ARCHITECTURE

The School of Art and Architecture offers the following degrees:

Department of Art:

Bachelor of Fine Arts (B.F.A.) in Graphic Design, Interior Design, Photography, and Studio

Master of Fine Arts (M.F.A.) in Graphic Design, Interior Design, Photography, and Studio

Department of Architecture:

Bachelor of Arts (B.A.) in General Studies (four year pre-Architecture)

Bachelor of Architecture (B.Arch. - five year professional degree that combines the four year pre-Architecture degree with an in-depth one year program of study)

Requirements For A Minor In Art

A minor in art consists of 21 hours approved by the Director of the School of Art and Architecture.

Bachelor Of Arts In Education

See College of Education.

Prerequisites

All courses must be taken in sequence as outlined in the Major Curriculum Requirements for each area. All courses in any sequence have the prerequisite of corresponding lower level courses. 100 level courses are prerequisites for 200 level courses, 200 level courses are prerequisites for 300 courses and 300 courses are prerequisite for 400 level courses.

Bachelor Of Fine Arts

This program is designed to train the professional artist. The curriculum combines a knowledge of techniques and general education. The candidate is required to complete the prescribed courses in the College of Arts and Sciences, and the remainder must be taken in the field of art. Total hours required, Graphic Design, Studio, Photography, 130; Interior Design, 131.

BACHELOR OF FINE ARTS CURRICULUM

GRAPHIC DESIGN

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 125, 126, 117, 215, 216, 225, 120, 121, 330, Art Elective	37
English 101, 102, 201, 202	12
Mathematics 107, 108, 109	6
Social Science and Humanities	9
Electives	6
	70
Junior and Senior Years	Semester Hours
Art	48
Electives	6
Science	6
	60
TOTAL SEMESTER HOURS	130

INTERIOR DESIGN

Freshman and Sophomore Years	Semester Hours
Architecture 122, 132, 310, 330	10
Art 105, 115, 116, 117, 125, 126, 120, 121, 215, 216, 250	31
English 101, 102, 201, 202	12
Mathematics 107, 108, 109	6
Electives	6
Science Electives	3
	68
Junior and Senior Years	Semester Hours
Art 352, 353, 354, 355, 356, 457, 458, 451, 452, 456	36
Art Electives	9
Social Science and Humanities	9
Science Electives	3
Electives	6
	68
TOTAL SEMESTER HOURS	131

FIELD TRIPS

Field trips are an important part of interior design course structure and students are required to participate in these trips. The expense of these trips is in addition to the tuition and should not exceed \$300.00 per year.

PHOTOGRAPHY

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 125, 126, 170, 117, 173, 215, 216, 270, 120, 271, 370	43
English 101, 102, 201, 202	12
Mathematics 107, 108, 109	6
Electives	6
Science	3
	70
Junior and Senior Years	Semester Hours
Art	42
Electives	6
Science	3
Social Science and Humanities	9
	68
TOTAL SEMESTER HOURS	130

STUDIO

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 117, 125, 126, 120, 121, 215, 216, 225, 228, 229, 240, Studio Major	43
English 101, 102, 201, 202	12
Mathematics 107, 108, 109	6
Electives	6
Science	3
	70
Junior and Senior Years	Semester Hours
Art	24
Studio Major	18
Electives	6
Science	3
Social Science and Humanities	9
	68
TOTAL SEMESTER HOURS	130

ARCHITECTURE CURRICULUM

The five-year professional curriculum in Architecture prepares the students to take their place as a citizen, as a leader, and as an architect in our society. The architect today must accept a concern and responsibility for the improvement of the physical design of the built environment. The architects must bring to their work creative imagination, technical knowledge, social insight, and individual integrity.

The professional curriculum is accredited by the National Architectural Accrediting Board. The five-year professional curriculum prepares the student for the professional office experience and for the National Council of Architectural Registration Boards' examination which is required by state law to be registered to practice architecture. The Department of Architecture is a member of the American Collegiate Schools of Architecture.

The Bachelor of Arts in General Studies (pre-Architecture), a non-professional degree, is awarded upon successful completion of the first four years of the curriculum in Architecture. The Bachelor of Architecture, the accredited professional degree, is awarded upon successful completion of the fifth year of the professional curriculum.

BACHELOR OF ARTS IN GENERAL STUDIES (Pre-Architecture)

Freshman Year-Introductory Sequence	Semester Hours
Architecture 110, 111, 120, 121, 130, 132	16
English 101, 102	6
Mathematics 111, 112, 220	9
Social Science (Geography, History, Philosophy, Political Science or Sociology) (Elective)	3
	<hr/> 34

Sophomore Year-Introductory Sequence	
Architecture 210, 220, 230, 231	12
Civil Technology 271	3
Engineering Mechanics 206	3
Art 366, 367	6
Behavioral Science or Social Science (Geography, History, Philosophy, Political Science, Sociology, or Psychology) (Elective)	3
English 201 or 202	3
Physics 205, 206	6
	<hr/> 36

A prerequisite to entering the professional concentration sequence requires successful completion of all 100/200 level courses unless approved by Department Head. Entering overall grade point requirement: 2.25; Maintain; 2.00.

Junior Year-Professional Concentration	Semester Hours
Architecture 310, 320, 321, 330, 331	16
Civil Technology 372	3
Engineering Mechanics 207	3
Elective	5
Electrical Engineering 326	3
English 336 or 484	3
Mechanical Engineering 326	3
	<hr/> 36

Senior Year-Professional Concentration	
Architecture 410, 411, 420, 430, 431	16
Civil Technology 471, 473, 474	9
Electives	8
Speech 377	3
	<hr/> 36

TOTAL SEMESTER HOURS 142

BACHELOR OF ARCHITECTURE

Fifth Year

A 2.5 overall grade point average is required. A portfolio of student work and a letter of intent must be presented for approval by the Department Head by the end of the fourth week of the fourth year Spring Quarter for a student to be admitted to the fifth year of study.

Fall Quarter	Semester Hours
Architecture 470, 471, 472	8
Elective	3
	<hr/> 11

Winter Quarter	
Architecture 480, 481, 482	8
Elective	3
	<hr/> 11

Spring Quarter	
Architecture 490, 491	6
Elective	3
	<hr/> 9

TOTAL SEMESTER HOURS 31

Total Semester Hours 5 Year Accredited Professional Bachelor of Architecture 173

DEPARTMENT OF CHEMISTRY

The Department of Chemistry offers two curricula leading to the Bachelor's degree.

The curriculum leading to the B. A. degree is designed for those students who wish to obtain a major in chemistry and at the same time pursue courses of interest in other areas. Pre-medical and pre-dental students in Arts and Sciences use this curriculum to fulfill the requirements for entrance into medical or dental school. (Students entering medical or dental school through the College of Life Sciences will generally major in zoology.)

The curriculum leading to the B. S. degree is more rigid, has fewer electives, but leads to a degree in chemistry which is certified by the American Chemical Society.

The pre-pharmacy curriculum is a two year course of study designed to prepare students entering a professional pharmacy program.

CHEMISTRY CURRICULUM (B.A.)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201	9
Health & Physical Education	2
Mathematics 111, 112, 230	9
Social Science Elective	3
	<hr/> 31

Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
English 202 or 303	3
Health & Physical Education	2
Mathematics 231, 232	6
Modern Foreign Language	6
Social Science Elective	3
Electives	6
	<hr/> 34

Junior Year	
Chemistry 205, 381	7
Physics 201, 202 or 209, 210 and 261, 262	8
Social Science Electives	6
Electives	12
	<hr/> 33

Senior Year	
Chemistry 311, 312, 313, 314	8
Chemistry Elective (400 level)	3
Electives	21
	<hr/> 32

TOTAL SEMESTER HOURS 130

CHEMISTRY CURRICULUM (B.S.)

Freshman Year	Hours
Chemistry 101, 102, 103, 104	8
English 101, 102	6
Health and Physical Education	2
Mathematics 111, 112, 230	9

Social Science‡	6
	31
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
Health and Physical Education	2
Modern Foreign Language	6
Mathematics 231, 232, 330	9
Physics 201, 202, 261, 262	8
	33
Junior Year	
Chemistry 205, 311, 312, 313, 314, 381	14
English 202, 203	6
Math 308 or 350	3
Social Science‡	3
Electives	6
	32
Senior Year	
Arts and Sciences 435	2
Chemistry 409, 420, 424, 466, 481	16
Physics 410	4
Social Science‡ or Economics Elective	3
Electives	8
	33
TOTAL SEMESTER HOURS	129
‡Geography, History, Political Science, Sociology.	

PRE-PHARMACY CURRICULUM (Two Year)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Economics 215	3
English 101, 102	6
Health and Physical Education	2
Mathematics 111, 112, 230 or 220	9
Zoology 111, 112	4
	32
Sophomore Year	
Accounting 203, 204	4
Chemistry 250, 251, 252, 253, 254	8
Physics 209, 210, 261, 262	8
Electives‡	16
	36
TOTAL SEMESTER HOURS	68

‡A minimum of nine hours credit to be selected from the areas of political science, history, psychology, or sociology. A minimum of seven hours to be selected from art, English, foreign languages, music, philosophy, and speech.

DEPARTMENT OF ENGLISH

English Exemption and Credit Examination

Any high school graduate whose ACT score was a composite 26, or above, qualifies to take the English Exemption Examination which will be given at the beginning of each quarter in each academic year. A written request to take the examination must be on file with the Chairman of the English Department at least two weeks in advance of the beginning of the fall or spring quarter. The examination will consist of grammar, punctuation, spelling, and composition. Credit for English 101 will be

given to those students who successfully pass the examination which will be administered by the English staff.

Requirements For A Major in English

Each student in the Department of English is required to follow the curriculum for English. Not later than the end of the sophomore year, each student must, with the approval of the head of the Department, choose major and minor fields of study and the rest of the program of work for their junior and senior years. This program leads to the Degree of Bachelor of Arts.

A major in English consists of 30 semester hours, which must include English 101, 102, 201, 202, 415, 422, 440, 450, and six additional hours of English.

Requirements For A Minor in English

A minor in English consists of 21 semester hours including English 101, 102, 201, 202, 415, 422, and three additional semester hours of English.

Requirements for a Concentration in Technical Communications

Students interested in pursuing a course of study in technical communications are required to enroll as majors in the Department of English. A minimum of 21 hours is required for a minor in technical communications. These hours may include 101, 102, 201 or 202; but 303 is mandatory. Remaining hours may be elected from 260, 361, 363, 460, 461, 462, 463, 464, 465, 466, and 467.

ENGLISH CURRICULUM

Freshman Year	Semester Hours
English 101, 102; 201 or 202	9
History 101, 102	6
History 201 or Political Science 201	3
Mathematics 111, 112 or 107, 108, 109	6
Science	4
Health & Physical Education	2
Elective	1
	31
Sophomore Year	
English 201 or 202	3
History 202 or Political Science 302	3
Foreign Language	6
Science	8
Speech 110	3
Music 330	2
Health & Physical Education	1
Electives	9
	35
Junior Year	
English 422, 450	6
Foreign Language	6
Health & Physical Education	1
Electives	20
	33
Senior Year	
Electives	24
English 415, 440	6
	30
TOTAL SEMESTER HOURS	129

Three quarters constitute an average academic year.

‡Students choosing Mathematics 111 must continue with Mathematics 112. Students choosing Mathematics 107 must continue with Mathematics 108 and 109.

The student is required to take four hours of activity courses in health and physical education.

The 12 hours of required credit in foreign language must be in a single language.

In choosing electives the student should remember the following points: first, complete a minimum of 30 hours in English; second, get the approval of his/her minor from the head of the Department; and third, must meet the minimum requirements in hours for the minor subject.

DEPARTMENT OF FOREIGN LANGUAGES

Students who so elect may earn credit for beginning and intermediate foreign language courses (100 and 200 level) by passing the corresponding department credit examinations. Students with three or more years of high school credit should consult the department head before registration.

All students are advised to complete a year's sequence without any time interval between courses and to have two years' work in their foreign language without any unnecessary interval between courses. A minor in a foreign language consists of 21 hours in that language. Majors should consult with their advisor concerning specific plans available for use of electives, minors and second areas to strengthen their major and career plans.

All foreign languages are taught under the general title of Foreign Languages. For course content one should refer to the course descriptions. The following number key is used to designate the various foreign language courses: The first digit of a foreign language signifies the year 1, 2, 3, or 4. The second and third digits denote one of seven foreign languages as follows: 00-19, French; 20-39, German; 40-45, Italian; 46-49, Portuguese; 50-59, Russian; 60-79, Spanish; 80-85, English as a Foreign Language. The French and Spanish curricula lead to the degree of Bachelor of Arts.

FRENCH CURRICULUM

Freshman Year	Semester Hours
Foreign Language 101, 102, 201 (French)	9
English 101, 102	6
Science	4
Health and Physical Education	2
History 101, 102	6
Elective	3
	30
Sophomore Year	
Foreign Language 202, 301, 302 (French)	9
English 201, 202	6
Science	4
Health and Physical Education	2
Electives	9
History 201 or Political Science 201	3
	33
Junior Year	
Foreign Language 306, 307 (French)	6
History 202 or Political Science 302	3
Science	4
Mathematics 111, 112 or 107, 108, 109	6

Minor, second area	15
	34
Senior Year	
Music 330	2
Foreign Language 300 (French)	3
Foreign Language Elective (French)	3
Minor, second area	24
	33
TOTAL SEMESTER HOURS	129

SPANISH CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
‡Mathematics 111, 112 or 107, 108, 109	6
Foreign Language 160, 161, 260 (Spanish)	9
Science	4
Health and Physical Education	2
Elective	3
	30
Sophomore Year	
English 201, 202	6
Foreign Language 261, 360, 361 (Spanish)	9
History 101, 102	6
Science	4
Health and Physical Education	2
Electives	6
	33
Junior Year	
Foreign Language (Spanish)	6
History 201, 202 or Political Science 201, 302	6
Electives, Minor, second area	21
	33
Senior Year	
Science	4
Minor, second area	21
Foreign Language (Spanish)	6
Music 330	2
	33
TOTAL SEMESTER HOURS	129

‡Students choosing Mathematics 111 must continue with Mathematics 112. Students choosing Mathematics 107 must continue with 108 and 109.

In choosing electives, the student should remember that each person is required to complete a minor in a subject approved by the head of the department. Students should request guidance in choosing from among the many courses at Tech which provide professional complements to Foreign language study.

DEPARTMENT OF HISTORY

Requirements For A Major

Thirty semester hours in history constitute a major in the Department of History. Every history major must have a minor, normally twenty-one hours in a related field, chosen after consultation with the department head and, if necessary, the head of the department in which the student wishes to minor. Every major will consult with his advisor during each registration period and a throughout the term as need arises. This program leads to the Degree of Bachelor of Arts.

The Garnie W. McGinty Chair of History, endowed by Dr. G. W. McGinty, former head of the History Department, is currently occupied by Dr. John D. Winters. The McGinty Trust Fund also enables the department to publish works on Louisiana history.

Requirements For A Minor

History 101, 102, 201, and 202 plus nine hours of advanced history taken during the junior and senior years constitute a minor.

HISTORY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Foreign Language	6
Geography 203, 225, or 226	3
History 101, 102.....	6
Mathematics 107, 108, 109†.....	6
Health & Physical Education	3
	30
Sophomore Year	
English 201, 202.....	6
Foreign Language	6
History 201, 202.....	6
Health & Physical Education	1
Science	8
Sociology 201, 202	6
	33
Junior Year	
Economics 200, 215.....	6
History 300 or 400 level course.....	9
Electives.....	9
Political Science 201, 302	6
Science	4
	34
Senior Year	
History 300 or 400 level course.....	9
Electives.....	23
	32
TOTAL SEMESTER HOURS	129

†Mathematics 111 and 112, each three hours credit, may be taken in place of Mathematics 107, 108, and 109.

DEPARTMENT OF JOURNALISM

Requirements for A Major

The 31 semester hours required for a major in journalism are Journalism 101, Journalism 102, Journalism 310, Journalism 410, and 19 hours in advanced courses numbered in the 300 and 400 series, including a total of 8 hours of Journalism 350, 353, and 355. This program leads to the Degree of Bachelor of Arts. For a minor, the Journalism student must complete 21 hours in an additional area.

Requirements for a Minor

For students in other departments Journalism 101, Journalism 102, Journalism 310 and 12 hours of advanced journalism courses, numbered in the 300 and 400 series, including any

two courses in practical journalism, will constitute a minor in Journalism.

Proficiency in spelling and grammar and an ability to type are essential to successful journalism-related work. Students weak in those subjects are discouraged from enrolling in journalism as a major or minor.

For students in other departments Journalism 101, Journalism 102, Journalism 310 and 12 hours of advanced journalism courses, numbered in the 300 and 400 series, including any two courses in practical journalism, will constitute a minor in journalism.

The University Newspaper

Practical experience in newspaper work is afforded the journalism students through their work as staff members of "The Tech Talk", the University newspaper, which is printed in the University printing plant. In addition to their editorial work on the newspaper staff, the journalism students are encouraged to gain experience through page make-up, etc.

Journalism Department Scholarships

Newspaper Service Co., Inc.'s Ann Fackelman Nixon Award

**Tommy Lewis Memorial Scholarship
Students Publication Service Scholarships**

These scholarships are service-based and are awarded basically to editors of The Tech Talk.

JOURNALISM CURRICULUM

English 101, 102, 201, 202.....	12
Foreign Language (same language)	12
Health & Physical Education (one-hour courses)	4
Journalism.....	31
Math.....	6
Natural Sciences (including a one-hour lab.....)	12
Social Studies, History 201, 202 plus six hours	15
Minor.....	21
Electives.....	17
TOTAL SEMESTER HOURS	130
TOTAL SEMESTER HOURS	130

DEPARTMENT OF MATHEMATICS AND STATISTICS

The courses in the department are designed as follows: (1) to provide general disciplines in mathematics in the core curriculum; (2) to serve the requirements of students pursuing a specialized curriculum in business, education, engineering, etc.; and (3) to provide students majoring in mathematics a thorough preparation for graduate mathematics or employment in industry or education. This program leads to the Degree of Bachelor of Science.

Prior to registration in Mathematics 230 a student majoring in mathematics from the College of Arts and Sciences, a student majoring in mathematics from the College of Education, or a student from the College of Engineering not having had high school geometry will be required to have credit in Mathematics 113.

Mathematics Placement by Mathematics Placement Test

Each beginning student prior to registration is required to take a placement test administered by the Mathematics and Statistics Department. Students along with advisors will determine the beginning mathematics course based on the placement test score. Placement test scores will be made available to the student's advisor.

Credit will not be given for courses bypassed. If the student desires credit for bypassed courses or others, provision is made for credit by examination. See Section "Credit by Examination" in this bulletin.

Requirements for a Major

Each student majoring in mathematics will be assigned an advisor from the members of the Mathematics and Statistics Department staff. This staff member will serve as the student's advisor throughout his/her college career. The student is requested to meet with his/her advisor at least once during each quarter, at which time courses for the following quarter will be decided upon.

Each mathematics major is required to complete the mathematics curriculum which follows and to complete a minor. The minor requirements are listed under the department concerned. An individualized study project for one to three semester hours is recommended for a major.

Students who wish to obtain a more intensive degree program with an emphasis in Statistics-Mathematics-Engineering will not be required to declare a minor if they earn credit for the following courses: (1) Statistics 418, Mathematics 414 and 440; (2) any three of the following courses: Statistics 428, 448, Mathematics 405, 407, 415, 441, 445; (3) six semester hours in the College of Engineering which are approved by the student's advisor. Note: No course may count toward the required mathematics and statistics courses in the Mathematics Curriculum and also the Statistics-Mathematics-Engineering Option.

Requirements for a Minor

Students in other departments who wish to minor in mathematics are required to take Mathematics 111, 112, 230, and in addition 12 semester hours earned in statistic courses or mathematics courses numerically above Mathematics 222 but excluding Mathematics 303, 304, and 307.

MATHEMATICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201	9
Mathematics 230, 231, 232	9
History 101	3
Health & Physical Education	3
	32
Sophomore Year	
English 202	3
Computer Science 102	3
History 102, 201	6
Mathematics 308, 330	6
Mathematics or Statistics Elective	3
Physics 201, 202, 261, 262	8
General Elective	3
Health & Physical Education	1
	33
Junior Year	
History 202	3

Computer Science 104, 106	4
Foreign Language	6
Mathematics 318	3
Mathematics or Statistics Elective (above 307)	6
Mathematics 350	3
Science (Electives)	3
General Electives	6
	34
Senior Year	
Mathematics 340	3
Mathematics or Statistics Elective (above 400)	3
General Electives	24
Science Elective	3
	33
TOTAL SEMESTER HOURS	132

DEPARTMENT OF MUSIC

Louisiana Tech University Department of Music is a fully accredited member of the National Association of Schools of Music. Requirements for entrance and for graduation are in accordance with the published regulations of this Association.

Transfer students are given validation requirements in theory and in their applied areas.

Students desiring to major in music can elect piano, voice, violin, viola, violoncello, string bass, flute, oboe, bassoon, clarinet, saxophone, trumpet, horn, trombone, euphonium, tuba, theory, and composition; or vocal, piano or instrumental music education as a major.

The Department of Music offers the following degrees:

Bachelor of Arts

Bachelor of Fine Arts

In cooperation with the College of Education, the Bachelor of Arts and Master of Arts degrees are offered in the curriculum Music Education.

REQUIREMENTS FOR THE BACHELOR OF FINE ARTS DEGREE -APPLIED MUSIC

	Semester Hours
Theory, Conducting and Literature	32
Applied & Ensemble Music	41

TOTAL SEMESTER HOURS73

In addition, students will complete the rest of the work indicated in the Music curriculum to make a total of 129 semester hours.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE-MUSIC

	Semester Hours
Theory and Literature	20
Applied and Ensemble Music	22

TOTAL SEMESTER HOURS42

In addition, students will complete the rest of the work indicated in the Bachelor of Arts in Music curriculum to make a total of 131 semester hours.

MUSIC MINOR PROGRAM

The Music Minor Program is designed for those who have a strong interest in music as a secondary subject.

The requirements are as follows:

32 semester hours - 16 applied music; 16 basic music

Basic music to include: 6 hours Theory; 6 hours Literature & History; 1 hour Conducting; 1 hour Ensemble; 2 hours music academic elective

Applied music to include 16 hours in two or more areas

ENSEMBLES

VOCAL:

University Chorus; Concert Choir; Tech Chorale; Opera Workshop

INSTRUMENTAL:

Symphonic Band; Concert Band; Marching Band; Jazz Band; Instrumental and Percussion Ensembles; Ruston-Tech Civic Symphony Orchestra; String Ensembles

Ensemble Requirements

Full time music majors will enroll in at least one major ensemble every quarter they are students in the Music Department. Vocal and piano majors will enroll in University Choir or Concert Choir; Wind and percussion majors will enroll in band and string majors will enroll in orchestra. All other music majors may select the major ensemble of their choice. The students will be allowed to participate in one other ensemble. Permission for participation in more than two ensembles or other music activity must be granted by the student's applied teacher and Head of the Department.

Every music major is required to attend the weekly recital and seminar classes and perform a minimum of once each quarter. It is recommended that piano majors enroll in Music 464, 465 and 467.

MUSIC CURRICULUM

This curriculum is designed for those who wish to stress the performing aspects of their training in any major — in voice, piano or in some instrument of the Symphony Orchestra or Band. All majors are required to take a minimum of two quarters of a foreign language. Other academic electives are approved according to individual needs. Each student must confer once each quarter with his/her advisor to check on his academic status and to plan future work. A senior recital is required. See departmental handbook for upper division requirements in applied music. This program leads to the Degree of Bachelor of Fine Arts.

Freshman Year	Semester Hours
English 101, 102.....	6
Music 108, 109, 110.....	3
Music 102, 103, 104.....	6
Music Applied Major.....	4
Music Applied Minor.....	2
Music Ensemble.....	3
Health & Physical Education.....	3
Science.....	3
	30

Sophomore Year	
English, Foreign Language or Speech.....	3
Music 201, 202, 203.....	6
Music 204, 305 or 306.....	3
Music Applied Major.....	5
Music Applied Minor.....	3
Music Ensemble.....	3
Music or Related Elective.....	3
Science.....	3
Health & Physical Education.....	1
Psychology 102.....	3
	33

Junior Year	
Foreign Language.....	3
Music or Related Elective.....	3
Music 310.....	3
Music 317, 318, 319.....	6
Music Applied Major.....	5
Music Applied Minor.....	2
Music Ensemble.....	3
Music 303 or 314.....	2
Social Science.....	6
	33

Senior Year	
Academic Elective.....	10
Foreign Language.....	3
Music or Related Elective.....	6
Music Theory Elective.....	3
Music Applied Major.....	6
Music Applied Minor.....	2
Music Ensemble.....	3
Music 455 (Recital).....	0
	33

TOTAL SEMESTER HOURS 129

MUSIC MAJOR CURRICULUM

Students who pursue a music major leading to the Bachelor of Arts degree will be required to complete the following distribution in music: Music Theory, 12 hours; History of Music, 8 hours; Applied and Ensemble Music, 22 hours. For their minor, students will take 21 hours in a subject chosen with the approval of the head of the department and the dean. In addition to their major and minor, they will complete the rest of the work indicated in the curriculum below, to make a total of 131 semester hours.

Freshman Year	Semester Hours
English 101, 102.....	6
History 101, 102.....	6
Mathematics 107, 108.....	4
Music 108.....	1
Music 109.....	1
Music 102, 103, 104.....	6
Music Applied.....	3
Music Ensemble.....	3
Health & Physical Education.....	1
Science.....	3
	34

Sophomore Year	
History 201, 202.....	6
Mathematics 109.....	2
Minor Subject.....	9
Music 201, 202, 203.....	6
Music Applied.....	3
Music Ensemble.....	3
Health & Physical Education.....	1
Science.....	3
	33

Junior Year	
Elective (Music Ensemble recommended).....	3
English 201, 202.....	6
Foreign Language.....	3
Minor Subject.....	9
Music Applied.....	4
Music 317, 318, 319.....	6
Health & Physical Education.....	2
	33

Senior Year	
Elective (Music Ensemble recommended)	4
Elective (Music 204, 305 or 306 recommended)	3
Foreign Language	9
Minor Subject	3
Music Applied	6
Science	6
	—
	31
TOTAL SEMESTER HOURS	131

DEPARTMENT OF PHYSICS

This curriculum is designed to give a broad and fundamental knowledge of the principles of physics, as well as an introduction to the techniques of physics research. Although the primary aim of the basic curriculum is to prepare the student for graduate work in physics, sufficient specialized courses are available to prepare the graduate for jobs in industry and in various government laboratories. The student is encouraged to pursue advanced courses in other fields to assure a broad scientific background.

Requirements For A Major

Each student who majors in physics is required to follow the physics curriculum leading to the Bachelor of Science degree in physics, or to follow the Applied Physics Option.

Applied Physics Option. The curriculum in applied physics is designed to equip its graduates with a flexible background of basic scientific knowledge with which to meet the ever changing problems of modern research and development. The program provides a sound basic foundation for study toward advanced degrees in either physics or the engineering sciences.

For students interested in interdisciplinary fields involving physics, it is suggested that the physics curriculum be followed with all electives taken in the other field of interest. Some interdisciplinary fields are listed with the appropriate elective field in parentheses: Astrophysics (Astronomy), Geophysics (Geology), Materials Science (Chemistry and Engineering), Biophysics (Zoology and Microbiology), Mathematical Physics (Mathematics), Solid State (Chemistry and Engineering).

Requirements For A Minor

Students from other departments who elect a minor in physics should complete Physics 201-202, and 14 semester hours of advanced courses.

PHYSICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Mathematics 230, 231	6
Elective	1
Health & Physical Education	3
English 101, 102	6
History 202	3
Speech 110	3
	—
	30
Sophomore Year	
Health & Physical Education	1
English 202, 303	6
Physics 201, 202, 261, 262	8
Mathematics 232, 330, 350	9
Foreign Language 120, 121	6
Liberal Arts Elective	3
	—
	33

Junior Year	
Physics 304, 410, 411	11
Technical Electives	12
Foreign Language 220, 221	6
Liberal Arts Electives	3
	—
	32

Senior Year	
Physics 307	3
Physics 404, 405, 422, 423	14
Chemistry 424	3
Technical Electives	7
Liberal Arts Electives	6
Arts and Sciences 435	2
	—
	35

TOTAL SEMESTER HOURS 130

See also Applied Physics Option.

Only four semester hours of physical education activity courses may count toward graduation.

The student may substitute French or Russian for German.

Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, Psychology, or Social Sciences.

Technical electives are to be selected from courses offered in the College of Engineering or from the departments of Chemistry, Mathematics, or Physics.

APPLIED PHYSICS OPTION

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Engineering 102, 151, 162	6
Health & Physical Education	3
Mathematics 230, 231	6
Elective	1
English 101, 102	6
	—
	30
Sophomore Year	
Physics 201, 202, 261, 262	8
Mathematics 232, 330, 350	9
Health & Physical Education	1
Engineering Mechanics 201	2
Electrical Engineering 213, 214	6
English 202, 303	6
	—
	32

Junior Year	
Physics 304, 410, 411	11
Engineering Mechanics 203	2
Electrical Engineering 353, 354, 355	7
Mechanical Engineering 433	3
Speech 110	3
Technical Electives	8
	—
	34

Senior Year	
Physics 307	3
Chemistry 424	3
Physics 404, 405, 422, 423	14
Economics 215	3
Engineering 401	3
Liberal Arts Electives	6
Arts and Sciences 435	2
	—
	34

TOTAL SEMESTER HOURS 130
See also Physics curriculum.

Only four semester hours of physical education activity courses may count toward graduation.

Technical electives are to be selected from courses offered in the College of Engineering or from the departments of Chemistry, Mathematics, or Physics.

Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, History, Psychology or Social Sciences.

DEPARTMENT OF PROFESSIONAL AVIATION

THE PROGRAM

The Professional Aviation curriculum combines flight training with both aviation technical courses and non-aviation university studies. This program leads to the Degree of Bachelor of Science.

REQUIREMENTS FOR ADMISSION

The student must pass an appropriate physical examination administered by a Federal Aviation Administration designated medical doctor.

REQUIREMENTS FOR A MAJOR

A major in Professional Aviation consists of 43 semester hours of aviation courses as follows: Professional Aviation 103, 113, 200, 201, 203, 213, 300, 301, 302, 313, 322, 400, 402, 403, 413.

REQUIREMENTS FOR A MINOR

A minor in Aviation flight consists of Professional Aviation 103, 113 and 16 semester hours of advanced courses. A minor in Flight Engineer Theory is open to Professional Aviation majors and consists of Professional Aviation 205, 303, 304, 305, 408, 409 and 412.

SPECIAL FLIGHT FEES

Fees are required for each flight course. A listing of these fees can be obtained by writing the Department Head.

PROFESSIONAL AVIATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201 or 202.....	9
Mathematics	6
Health & Physical Education	3
Psychology 102.....	3
Professional Aviation.....	6
Social Science Elective.....	3
Free Elective.....	3
	33
Sophomore Year	
Health & Physical Education	1
History 201, 202.....	6
Physics 205, 206.....	6
Professional Aviation.....	15
Free Elective.....	3
	31

Junior Year	
English 303 or 332 or 336.....	3
Free Elective.....	3
Speech 377	3
Social Science Elective.....	3
Professional Aviation.....	10
Minor Field	9
	31

Senior Year	
Natural Science Elective	6
Minor Field	12
Professional Aviation.....	12
Free Elective.....	3
	33

TOTAL SEMESTER HOURS 128

Either Mathematics 111 and 112, or 107, 108 and 109 may be taken depending on results of ACT and mathematics placement test.

Only four semester hours of physical education activity courses may count toward graduation.

Social Sciences electives must be taken from courses offered by the Department of Social Sciences.

DEPARTMENT OF SOCIAL SCIENCES

Requirements For A Major

Thirty semester hours of prescribed courses in geography and political science constitutes a major in those subjects in the Department of Social Sciences. Thirty-three hours of prescribed courses in sociology constitutes a major in sociology in the department. Thirty-three hours of prescribed courses in social welfare and sociology courses satisfy the requirements for a major in the Pre-Professional Curriculum in Social Welfare. Every student major must have a minor, normally twenty-one hours in a related field, chosen after consultation with his/her advisor. Every department major will consult with his/her advisor during each registration period and throughout the term as necessary.

The degree of Bachelor of Arts is conferred upon completion of any of the curricula: Geography, Political Science, Sociology, Pre-Professional Social Welfare and Pre-Law.

Requirements For A Minor

GEOGRAPHY: Any seven courses in geography constitute a minor.

POLITICAL SCIENCE: Any seven courses in political science constitute a minor.

SOCIOLOGY: Any seven courses in sociology constitute a minor.

GEOGRAPHY CURRICULUM

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201.....	9
Geography 200, 203	6
History 101, 102, 201.....	9
Mathematics 107, 108, 109.....	6
Health & Physical Education	2
	33
Sophomore Year	
English 202.....	3
Foreign Language	6

Geography 225, 226	6
History 202	3
Health & Physical Education	2
Political Science 201, plus Elective	6
Science	8
—	—
	34

Junior Year	
Economics 215	3
Electives	6
Foreign Language	6
Geography 380	3
Geology 111, 121	4
Sociology 201, 460	6
—	—
	28

Senior Year	
Political Science 302	3
Electives	16
Geography	15
—	—
	34

TOTAL SEMESTER HOURS 129

POLITICAL SCIENCE CURRICULUM

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201	9
History 101, 102, 201	9
Mathematics 107, 108, 109	6
Health & Physical Education	2
Speech 110	3
—	—
	30

Sophomore Year	
English 202	3
Foreign Language	6
Geography 203	3
History 202	3
Health & Physical Education	2
Political Science 201, 302, plus Elective	9
Science	8
—	—
	34

Junior Year	
Economics 201, 202	6
Elective	3
Foreign Language	6
Political Science 345, plus 2 electives	9
Science	4
Sociology 201, 202	6
—	—
	34

Senior Year	
Electives	19
Political Science	12
—	—
	31

TOTAL SEMESTER HOURS 129

PRE-LAW CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Management 105	3
History 101, 102	6

Mathematics 107, 108, 109	6
Health and Physical Education	2
Electives: Economics 100, History 201, Psychology 102 or Speech 110	6
—	—
	29

Sophomore Year	
Economics 201, 202 (or Acct 203, 204, 205)	6
Sociology 201, (or History 202)	3
English 201, 202	6
Foreign Language	6
Health and Physical Education	2
Political Science 201	3
Science (two courses plus labs)	8
—	—
	34

Junior Year	
Business Law 355 (or Philosophy 201)	3
Political Science 325, 326	6
English 332 or 460	3
Sociology 202, 205, (or 314)	6
Geography 203	3
Science (one course plus lab)	4
Electives (Management 311, Philosophy 251, 252, 305, 350- 351, Political Science, Business Law, English 303, 321, 336, 423, or Foreign Language	9
—	—
	34

Choice of Mathematics 111 and 112 or Mathematics 107, 108, 109 will depend upon Mathematics Placement scores.

Senior Year	
Business Law 356 (or 441 or 445)	3
English 401, 423	6
Philosophy 305 (or 424)	3
Political Science 426, 427, (or 327 or 310)	6
Sociology 314 (or 304 or 306 or 318)	3
Electives (Psychology 202 or 304, English 415, 416, 417, 422, 440, 450, 481, 484, or Economics 215, 401, 406, 408, 410, 411, 418, or Political Science 302, 303, or 304, 312, or Sociology 304, 308 312, 410)	9
—	—
	30

TOTAL SEMESTER HOURS 127

Credit for Economics 215 or Economics 201, 202 but not both.

PRE-PROFESSIONAL CURRICULUM IN SOCIAL WELFARE

Freshman Year	Semester Hours
Economics	3
English 101, 102	6
Foreign Language	6
History 201, 202	6
Mathematics 107, 108	4
Health & Physical Education	2
Geography	3
Zoology 105, 112	4
—	—
	34

Sophomore Year	
English 201, 202	6
Foreign Language	6
Mathematics 109, 200	5
Health & Physical Education	2

Political Science 201	3
Sociology 201	3
Social Welfare 200	3
Speech 110	3
Psychology 102	3
	—
	34
Junior Year	
History	6
Political Science	3
Psychology 202, 461 & six additional hours	12
Social Welfare 301	3
Sociology 312 or 345, 320 and three additional Sociology hours	6
	—
	33
Senior Year	
Electives	12
Psychology 400	3
Sociology 401 and six additional Sociology hours	9
Social Welfare 350, 431	6
Counseling 400	3
	—
	33
TOTAL SEMESTER HOURS	134

SOCIOLOGY CURRICULUM

Freshman Year	Semester Hours
Economics 100	3
English 101, 102	6
Foreign Language	6
History 201, 202	6
Mathematics 107, 108	4
Health & Physical Education	2
Speech 110	3
Zoology 105, 112	4
	—
	34
Sophomore Year	
English 201, 202	6
Foreign Language	6
Geography	3
History	6
Mathematics 109	2
Health & Physical Education	2
Sociology 201 and three additional Sociology hours	6
Statistics 200	3
	—
	34
Junior Year	
Electives	6
Political Science 201, plus three additional Political Science hours	6
Sociology 312 or 345, 320 and six additional Sociology hours	12
Psychology 102, 202, 461	9
	—
	33
Senior Year	
Electives	9
Psychology	6
Sociology 401 and twelve additional Sociology hours	15
Political Science 327 or 427	3
	—
	33
TOTAL SEMESTER HOURS	134

DEPARTMENT OF SPEECH

Requirements for a Major

A major in speech consists of 33 hours which may be earned by concentrating in Speech Communication, Theatre, or Preprofessional Speech Pathology (see curriculum for Preprofessional Speech Pathology). The student concentrating in Speech Communication will be required to take the following courses: Speech 110, 211, 225, 340, 370, 430, 431, 432, 440 plus six additional hours in speech. In addition, 24 hours of specialized study in related areas must be approved by the student's advisor. The student concentrating in theatre will be required to take the following courses: Speech 110, 201, 240, 401, 402, 404, 406, 407, 424, 428, plus three additional hours in speech. The degree of Bachelor of Arts is awarded upon completion of either the Speech Curriculum or Preprofessional Speech Pathology Curriculum.

Requirements for A Minor

A minor in speech consists of 24 hours which should include Speech 110, 200, 201, 211, 315, 340, plus 6 additional hours.

Facilities For Speech Activities

Courses which include instruction in the techniques of television and motion pictures are taught in the studio facilities of Madison Hall. These courses involve actual operation of equipment by all students enrolled.

The Louisiana Tech University Forensic Program is available to all Tech students who are interested in participating in competitive Speech activities, including Debate. Tech debaters enter several college tournaments each year.

The Louisiana Tech Speech Department presents five to seven theatre productions each year. All interested persons are welcome to participate in these theatre activities.

Speech And Hearing Center Facilities

The Louisiana Tech Speech and Hearing Center located in Robinson Hall affords diagnostic, consultative and remedial services for Tech students and the people of North Louisiana with speech, language, and hearing disorders. The testing and consultative service is provided by faculty who hold the certificate of clinical competence in Speech Pathology and / or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

SPEECH CURRICULUM

Freshman Year	Semester Hours
Speech 110, 201, 340	9
Science	4
Mathematics 107, 108, 109	6
Health & Physical Education (Activity or ROTC)	2
Foreign Language	6
English 101	3
	—
	30
Sophomore Year	
English 102, 201	6
Speech 200, 211, Speech Elective	9
Foreign Language	6
Health & Physical Education (Activity or ROTC)	2
Science	4
History	3
Elective or Minor	3
	—
	33

Junior Year	
English 202.....	3
Speech 315, 406, 407, 416	12
Science	4
History	3
Electives.....	9
Social Science.....	3
	—
	34

Senior Year	
Electives or Minor	26
Social Science.....	3
Speech Elective.....	3
	—
	32

TOTAL SEMESTER HOURS 129

PRE-PROFESSIONAL SPEECH PATHOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
History 101, 102.....	6
Mathematics 107, 108, 109.....	6
Speech 110, 210, 222	9
Zoology 111.....	3
	—
	30

Sophomore Year	
English 201 or 202, 332.....	6
Physics 205, 465.....	6
Psychology 102.....	3
Special Education 300.....	3
Speech 411, 413, 418, 420, 470	15
	—
	33

Junior Year	
Foreign Language	9
Political Science 201	3
Speech 312, 412, 443, 444, 445, 465	17
Sociology 201	3
Zoology 225	3
	—
	35

Senior Year	
Foreign Language	3
Health & Physical Education 150	2
Psychology 205, 206, 310.....	9
Special Education 301, 340, 490.....	9
Speech 425, 446.....	6
Speech Elective.....	3
	—
	32

TOTAL SEMESTER HOURS 130

Students in speech pathology and audiology should be aware that the following requirements must be met before they will be allowed to register for Speech 312: Introduction to Clinical Procedures:

1. The student must have completed 25 hours of observation of clinic activities, speech and hearing evaluations, and therapy sessions (either actual or video-taped) .

2. The student must have an overall grade point average of 2.5 in the following courses: Speech 210, 222, 411, 413, 418, 420, and 470.

3. The student must file with the head of the department a formal application for permission to register for Speech 312. This application should be submitted the quarter for which the student is registered for Speech 411: Diagnostic Procedures.

Students should be aware that it is often necessary to assign them to affiliated off-campus clinical training sites in order for them to earn the required clinical clock hours for certification. Each student will be responsible for transportation when assigned to one of these sites.

College of Education

OFFICERS OF INSTRUCTION

J. W. ANDREWS, Dean
J. B. AKERS, Area Coordinator, Health and Physical Education
R. E. HEARN, Director, A. E. Phillips Lab School
C. R. FOXWORTH, Director, Graduate Studies
D. R. NELSON, Associate Dean, Area Coordinator, Teacher Education
C. E. SUTTON, Director, Laboratory Experiences
J. M. WILLIAMS, Area Coordinator, Behavioral Sciences and Director of Division of Education Research and Services

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana State Board of Education, is accredited by the Southern Association of Schools and Colleges. As an individual unit, it is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. The College of Education is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers at the undergraduate and master's degree levels.

HISTORY AND ORGANIZATION

Since the founding of Louisiana Tech in 1894 the education of teachers has been a primary aim of the institution. The Laboratory School, A. E. Phillips Elementary School, was created by the Legislature in 1916. On November 12, 1925, the State Board of Education approved teacher education curricula, and on March 15, 1926, the State Board recognized the reorganization of these curricula. A Department of Education was recognized by the State Board in 1933 and in April of the following year authorization was granted for the organization of a separate school. In July, 1970, the School was elevated to the level of a College of Education.

In 1948, physical education was transferred from the School of Arts and Sciences to the School of Education as a department. In 1955, the offerings in education were divided, forming departments of elementary and secondary education; and the Department of Special Education was created to service schools in the parishes of Bienville, Claiborne, Jackson, Lincoln, Union, and Webster to train teachers in working with the various areas of exceptionality. Bossier Parish was added to the work area in 1959. In 1973, the Grambling State University special education team was combined with the diagnostic team at Louisiana Tech. In 1979, the services rendered by these teams were assumed by the parish school boards. In 1965 the organization was expanded to include a Department of Psychology and Guidance and in 1970 the Division of Research and Publications was established. In July, 1972, the State Board approved a reorganization of the College which created a Division of Research and Service and a Division of Curriculum and Instruction. In the Division of Curriculum and Instruction three areas of instruction were created; teacher education which included all elementary and secondary programs, psychology and counseling, and health and physical education which included programs for men and women.

In July, 1975, the instructional program in special education was moved from Teacher Education to the area of Counseling

and Psychology and the name of the area was changed to Behavioral Sciences.

By action of the State Board of Education on December 17, 1957, January 31, 1958, April 3, 1958, April 18, 1961, and July 29, 1968, authorization was given to grant the Master of Arts degree in Art Education, Elementary Education, English Education, Music Education, Social Studies Education, Special Education, Speech Education, and Vocational Guidance, and the Master of Science degree in Biology Education, Business Education, Chemistry Education, Mathematics Education, Physics Education, and Health and Physical Education. In April, 1967, the State Board of Education granted approval to offer the Specialist Degree and on November 1, 1968, authority was granted to offer extension or off-campus courses.

OBJECTIVES

The College of Education functions as an integral part of Louisiana Tech University. From its founding in 1894, one of the purposes of the University has been the preparation of elementary and secondary teachers. Teacher education has continued to maintain an important position within the institution. The purposes of the College of Education, therefore, are consonant with those of the University: to prepare qualified practitioners, to facilitate learning, to conduct research, and to perform public services. These purposes find expression in the following objectives:

1. To assist undergraduates to become competent, qualified teachers by providing quality programs in teacher education;
2. To maintain teacher-education programs which, through reading, research, and professional meetings, embody the best of current educational ideas and practices;
3. To provide a variety of experiences which will prepare the prospective teacher to assume the professional role of the teacher;
4. To implement learning through the continuous development of facilities such as learning laboratories and library resources which are relevant to educational processes at all levels;
5. To research, develop, use, and disseminate knowledge of human behavior and relevant teacher-learning processes;
6. To provide at the graduate level educational experiences which will develop the individual's knowledge in both breadth and depth;
7. To provide needed diagnostic services to educationally disadvantaged children, their teachers, and their parents;
8. To provide professional consultation service, workshops, seminars, extension courses, and contract research to teachers, administrators, school boards, and other community agents interested in human development and education; and
9. To continually evaluate the curricula, course offerings, and community services of the College in the light of new knowledge, contemporary career requirements, and opportunities for college graduates.

ADMISSION AND RETENTION

Admission and retention policy for the College of Education is set and administered by the College of Education Admission and Retention Committee.

Students desiring to enter the College of Education must make an application in which they show at least a 2.0 on all

college work earned, in addition to freedom from disqualifying physical handicaps.

Upon admission to the College of Education, each student will be assigned an advisor who will assist in planning a program in teacher education. This advisor will be available for conferences during the academic year and must be consulted at each registration.

Students placed on academic probation and/or suspension four times will be dropped from the College of Education. Any student re-entering the College of Education after being suspended for academic, attendance, or disciplinary reasons must re-apply to the Admission and Retention Committee.

UPPER DIVISION

After a student has earned 30 semester hours of university credit in a teacher education program, the student may apply for Upper Division. An application must be made in which the student gives evidence of meeting the following qualifications:

1. Applicant must have earned at least 30 semester hours of college or university credits which include the following courses or their equivalents: Education 101, 200; English 101, 102; physical education activity (2 semester hours); science (3 semester hours); and Speech 110.

2. Applicant must have grade point average of 2.2 on all work attempted, with a grade of at least C in Education 200; English 101, 102; and Speech 110.

3. Applicant must be free from physical and emotional impediments which would prevent the person being an effective teacher.

Deliberate falsification of the application may result in the student being dropped from the College of Education. The application must be filled in completely, dated, signed, and turned in to the Dean's office one week before the beginning of the quarter during which the applicant will register for Upper Division courses.

Applicants may be asked to appear before the Admission and Retention Committee of the College of Education to explain or defend their applications, to present additional information, or to demonstrate ability in certain areas. Students may re-apply once for upper division admittance if the first application is refused. Students will be dropped from the College of Education if refused admittance twice unless the committee feels there are extenuating circumstances.

CREDITS THROUGH COLLEGE ENTRANCE EXAMINATION BOARD

For information concerning this section, contact the office of the Dean.

DEGREES

Students who complete a four-year teacher education curriculum in the College of Education are granted the bachelor's degree, and are awarded a certificate by the State Department of Education to teach their specialties in the schools of Louisiana.

The degree of Bachelor of Science is awarded to students who finish the curricula in business education, mathematics education, science education, and health and physical education. The degree of Bachelor of Arts is awarded to students finishing all other undergraduate curricula. The Master of Arts degree is awarded in the following areas: art education, counseling education, elementary education, English, human relations and supervision, music, reading, social studies, special education and speech education. The Master of Science degree is awarded in the following: biology, business, chemistry, physics, mathematics, and physical education. The Specialist degree in Education is awarded in the following areas: counseling, and reading.

GRADUATION REQUIREMENTS

In addition to completing the general graduation requirements of Louisiana Tech, students pursuing a degree program which leads to Louisiana teacher certification must take the National Teachers Examination.

Students completing a degree program leading to Louisiana Teacher Certification must make a grade no lower than C in all specialized academic courses and in all professional courses.

Math 105 and Reading 200 cannot be used as degree credit in a teacher education program.

State certification requirements do not permit the substitution of credit for ROTC and band for health and physical education activities requirements. Health and physical education activity credit accepted by the University for military service can be applied to satisfy this requirement, except in cases where a specific activity is required in a curriculum.

Correspondence courses and off-campus work which a student in the College of Education wishes to apply toward a degree must be approved by his/her advisor and dean in advance of registration in writing.

SECOND TEACHING AREAS AVAILABLE TO EDUCATION MAJORS

Second teaching areas are required in all teacher education curricula except art, elementary, business, music, speech, language, and hearing therapy, and science.

The specific course requirements for second teaching areas in the different fields are as follows:

English:

Education 403, English 101, 102, 201, 202, 332, 336, 415, 422, and 3 hours of English electives.

Foreign Language: — a minimum of 24 semester hours in a language or 18 semester hours if taken above the first year college level.

Journalism:

101, 455, 2 of the following courses: 350, 353, 355; and 11 hours of electives.

Library Science:

201, 210, 301, 302, 303, 305, Education 420 and 446.

Mathematics:

111, 112, 113, 230, 231, 232, and 307.

Science:

6 hours of Biology (Botany, Zoology, or Bacteriology), 6 hours of Chemistry, 6 hours of Physics, 6 hours of Earth Science, Plus 8 hours in any one of the above fields.

Health and Physical Education:

200, 320, 326, 405, 457; Zoology 225, plus 10 hours in activities and techniques with consent of physical education minor advisor.

Psychology Minor:

Psychology Minor requires 21 hours. Courses: Psychology 102, 202, 300, 307, 312, 414 or 418, 310 or 304.

Social Studies:

History 101, 201, 202, 460, Political Science 201 and 304, Sociology 201, Geography 203, 230; Economics 200 and 215.

Speech:

110, 200, 201, 211, 315, 340, 406, 407, 416, plus 3 hour Speech Elective.

Business:

Econ. 215, Acct. 203, 204, 205, 310, Office Adm. 202, 203, Quan. Anal. 220, Bus. Law 355 or 356, Mktg. 300, Off. Adm. 480/Mgt. 480, and Educ. 409

STUDENT TEACHING AND LABORATORY EXPERIENCES

The capstone of all teacher education curricula is the intensive phase of laboratory experiences provided in Education 416, Student Teaching. Also, all curricula require additional laboratory experiences in courses taken prior to student teaching.

Professional laboratory experiences are provided both in a campus laboratory school and in public elementary and secondary schools in area parishes.

Prerequisites for student teaching are as follows:

A. General Prerequisites

1. Must be registered in the Upper Division of the College of Education
2. Must have achieved a 2.5 on hours earned.
3. Must be recommended for student teaching by faculty advisor and approved by the Student Teacher Screening Committee.
4. Education 390 must be taken before or during student teaching.
5. Must have earned a grade no lower than C in all education and psychology courses taken before student teaching.

B. Additional Prerequisites for Elementary Education Majors

1. Must have successfully completed Education 320, Education 322, Education 323, Education 324, Education 402, Psychology 204, and Psychology 205.

C. Additional Prerequisites for Secondary Education Majors

1. Must have successfully completed Education 380, Education 402, and Psychology 206.
2. Must have a C or better in each course pursued in the major and minor areas.
3. The special methods course(s) in student teaching area(s) must be completed before student teaching.
4. Must have completed virtually all course work in major and minor areas.

D. Additional Prerequisites for Speech, Language, and Hearing Therapy

1. Must have successfully completed Psychology 204, 205, 206, Education 323, Education 324, and 355.
2. Must have a C or better in each course pursued in major area.
3. Must have completed virtually all course work in major area.

No more than three semester hours may be taken with student teaching. Any course scheduled in addition to student teaching must not conflict with student teaching. The hours involved in student teaching will be approximately 8am to 3pm Monday through Friday. Nine semester hours credit are awarded for Education 416. No conventional grades or quality points are given.

Any course scheduled in addition to student teaching must not conflict with student teaching. The hours involved in student teaching will be approximately 8 a.m. to 3 p.m., Monday through Friday.

Eight semester hours credit are awarded for Education 416. No conventional grades or quality points are given.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICE

The Division of Educational Research and Service was officially created in 1970. research, writing, and demonstration projects by the faculty of the College and to assist in identifying appropriate avenues for the dissemination of the results.

The College of Education research committee is chosen from the academic department and division chairmen, with the director of the Division of Research and Service serving as chairman. The committee is charged with establishing general policies and procedures for the Division and is responsible to the Dean of the College of Education.

Financial support for the activities of this Division is derived through the regular operating budget and from special grants of local school districts, state and federal agencies.

SCHOLARSHIPS

Scholarships are available in the College of Education. For information concerning these scholarships, contact the Office of the Dean of the College of Education.

ART EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 115, 116, 117, 120, 125, 126	18
Education 101	1
English 101, 102	6
Health & Physical Education Activities	3
Mathematics 107, 108	4
Speech 110	3
	<hr/>
	35

Sophomore Year	Semester Hours
Art 121, 215, 216, 220, 240	12
Biological Science	3
Education 200	3
English 201, 202	6
Health & Physical Education 150	2
Health & Physical Education Activity	1
History 201, 202	6
Mathematics 109	2
	<hr/>
	35

Junior Year	Semester Hours
Art 225, 330, 366, 367	12
Education 360, 380, 390, 402	9
Physical Science	3
Political Science 201	3
Psychology 206	3
Science Elective	3
	<hr/>
	33

Senior Year	Semester Hours
Art 241, 320	6
Art Elective	3
Education 403, 404, 416	15
Health & Physical Education 290	3
Science Elective	3
Social Studies Elective	3
	<hr/>
	33
TOTAL SEMESTER HOURS	136

BUSINESS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science Elective	3
Education 101	1
English 101, 102	6
Health & Physical Education Activities	2
History 201 or 202	3
Math 107, 108, 109	6
Office Administration 202	2
Physical Science Elective	3

Political Science 201	3
Speech 110	3
	32
Sophomore Year	
Economics 201, 202	6
Education 200	3
Electives (OA 206, 207, 208, or Bus. Adm.)	9*
English 201, 202	6
Health & Physical Education Activities	2
Office Administration 203	2
Psychology 206	3
Quantitative Analysis 220	3
	34

Junior Year	
Accounting 203, 204, 205	6
Business Law 355	3
Education 380, 390, 402	6
Electives (OA 303, 304, or Bus. Adm.)	6*
Management 311	3
Marketing 300	3
Office Administration 305	3
Science Elective	3
	33

Senior Year	
Accounting 210	3
Education 409	2 or 3**
Education 403, 404, 410, 416, 462	21
Office Administration 307, 310	5
Science Elective	3
	34 or 35

TOTAL SEMESTER HOURS 133 or 134

*The Shorthand Option or the Business Administration Option will determine the elective.

**The Shorthand Option or the Business Administration Option will determine the amount of credit.

SHORTHAND OPTION (15 hours)

Office Administration 206, 207, 208, 303, 304

BUSINESS ADMINISTRATION OPTION (15 hours)

Business Law 356	3
Economics 312	3
Finance 318	3
Office Administration 480	3
3 Hours from following:	3
Finance 100, Economics 472	

ELEMENTARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 101, 102	4
Botany 101, 104	4
Education 101	1
Elective	3
English 101, 102, 201	9
Health & Physical Education 290	3
Health & Physical Education Activities	2
History 201	3
Speech 110	3
	32
Sophomore Year	
Botany 225	3

Education 200	3
English 202	3
Geography 203, 230	6
Health & Physical Education 130, 150	3
History 202	3
Library Science 201	3
Music 230	2
Political Science 201	3
Psychology 204	3
Zoology 105, 112	4
	36

Junior Year	
Education 320, 322	6
Elective	3
English 332	3
Health & Physical Education 340	3
Health & Physical Education Activity	1
Mathematics 303, 304	6
Music 234	2
Physics 205	3
Psychology 205	3
Speech 330	3
	33

Senior Year	
Education 323, 324, 390, 402, 416, 420	21
Elective	3
History 460	3
Home Economics 223	2
Special Education 300	3
	32

TOTAL SEMESTER HOURS 133

In lieu of the basic elementary education curriculum students in the field may choose an option in Early Childhood Education.

EARLY CHILDHOOD EDUCATION

In addition to the basic elementary curriculum the following courses will be required to complete this option: Education 420, 431, 432, 441, and Psychology 408 or Home Economics 301.

The following courses found in the basic elementary curriculum will not be required for this option: Electives (9), English 332 and Geography 230.

ENGLISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
Physical Science	3
Speech 110	3
	33
Sophomore Year	
Education 200	3
Elective	3
English 202, 332	6
English Elective	3
Health & Physical Education 290	3
Health & Physical Education Activity	1

Political Science 201	3
Science Electives	6
Social Science Elective	3

31

Junior Year	
Education 350, 380, 390	7
Electives	6
English 415, 422	6
English 336 or 484	3
Health & Physical Education 150	2
Health & Physical Education Activity	1
Library Science 303, 305	6
Psychology 206	3

34

Senior Year	
Education 402, 403, 404, 416	17
Electives	12
English 400 Level Elective	3

32

TOTAL SEMESTER HOURS 130

FRENCH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201	9
Foreign Language 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108	4
Speech 110	3

34

Sophomore Year	
Biological Science	3
Education 200	3
Elective	3
English 202, 422	6
Foreign Language 202, 300, 301	9
Mathematics 109	2
Health & Physical Education Activities	2
Physical Science	3
Science Elective	3

34

Junior Year	
Education 351, 380, 390	7
Electives	6
Foreign Language 203, 302, 306	9
Health & Physical Education 150, 290	5
Psychology 206	3
Science Elective	3

33

Senior Year	
Education 402, 403, 404, 416	17
Electives	6
Foreign Language 307	3
Political Science 201	3
Social Studies Elective	3

32

TOTAL SEMESTER HOURS 133

HEALTH AND PHYSICAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	4
Education 101	1
English 101, 102, 201, 202	12
Health and Physical Education 150, 250, 240 or 245, or 230 or 261, 103	5
History 201, 202	6
Math 107, 108, 109	6
Speech 110	3

37

Sophomore Year	
Education 200	3
Elective (Minor)	3
Health and Physical Education 200, 290, 251, 300	12
Health and Physical Education Activities	3
Physical Science	3
Political Science	3
Psychology 206	3
Zoology 105, 112	4
Social Studies Elective	3

37

Junior Year	
Education 380, 390	4
Elective (Minor)	6
Health and Physical Education 305, 320, 326	9
Health and Physical Education Technique	4
Health and Physical Education Activity	3
Zoology 225, 226	4

30

Senior Year	
Education 416	9
Elective (Minor)	3
Health and Physical Education 414, 457	7
Second Methods	3
Education 402, 403, 404	8

30

Health and Physical Education techniques and activities - with consent of advisor.

HEALTH AND PHYSICAL EDUCATION CURRICULUM NON CERTIFICATION

Freshman Year	Semester Hours
English 101, 102, 201	9
Journalism 101	3
Health & Physical Education Activities	5
History 201, 202	6
Mathematics 107, 108, 109	6
Psychology 102	3

32

Sophomore Year	
Speech 377	3
English 202	3
Health & Physical Education 405, 290, 300, 304, 150	13
Health & Physical Education Activities	3
Life Sciences 200, 300	6
Sociology 201, 202	6

34

Junior Year	
Health & Physical Education 326, 410	6
Zoology 225, 226	4
Health and Physical Education Electives (minor)	9
Electives	15

34

Senior Year	
Health & Physical Education 406, 407, 414	9
Psychology 304	3
Health and Physical Education 415	6
Electives (minor)	12

30

TOTAL SEMESTER HOURS 128

HEALTH AND PHYSICAL EDUCATION CURRICULUM — RECREATION OPTION

Freshman Year	Semester Hours
Life Sciences 200	3
English 101, 102, 201	9
Health & Physical Education 225, 290, 405	8
History 201, 202	6
Math 107, 108, 109	6
Health & Physical Education Activity	1

33

Sophomore Year	
English 202	3
Journalism 101	3
Botany 212	3
Zoology 225, 226	4
Sociology 201	3
Health & Physical Education 226, 300, 304, 317	12
Health & Physical Education Activities	2
Psychology 206	3

33

Junior Year	
Horticulture 220 or 307	3
Speech 110 or 377	3
Political Science 201	3
Electives	11
Art 240	3
Health & Physical 320, 325, 355	9
Health & Physical Activity	1

33

Senior Year	
Health & Physical Education 404, 406, 410, 414	12
Health & Physical Education 415	6
Health & Physical Education Activities	3
Electives	9

30

TOTAL SEMESTER HOURS 129

LIBRARY SCIENCE

To meet the needs of Louisiana schools, courses in library science are offered which prepare teachers and librarians in conformity with the requirements of the State Department of Education and the Southern Association of Colleges and Schools. Students completing the 21 hours of library science

qualify for public library subprofessional positions in the state and are eligible for employment as public library assistants. Students may follow the library science curriculum, completing a major in library science and a minor in a subject matter field.

LIBRARY SCIENCE ELEMENTARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 101, 102	4
Biological Science	3
Education 101, 200	4
English 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Music 230	2
Speech 110	3

33

Sophomore Year	
English 202	3
Geography 203	3
Health & Physical Education 130, 150	3
Health & Physical Education Activity	1
Library Science 201, 210, 303	9
Mathematics 303	3
Music 234	2
Physical Science	3
Psychology 204	3
Political Science	3
Science Elective	3

36

Junior Year	
Education 320, 322, 323	9
Geography 230	3
Library Science 301, 302, 305	9
Library Science Elective	3
Mathematics 304	3
Psychology 205	3
Science Elective	3
Special Education 300	3

36

Senior Year	
Education 324, 390, 402, 416, 446	18
Education 420 (Library Science, Reading)	6
English 332	3
Health & Physical Education 340	3
History 460	3
Home Economics 223	2
Library Science Electives	3

38

TOTAL SEMESTER HOURS 143

LIBRARY SCIENCE SECONDARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
Science Elective	3

Speech 110.....	3
	33
Sophomore Year	
Education 200.....	3
English 202.....	3
Electives.....	9
Health & Physical Education Activity.....	1
Library Science 201, 210, 303.....	9
Political Science 201.....	3
Science Elective.....	3
	31
Junior Year	
Education 380, 390.....	4
Electives.....	12
Health & Physical Education Activity.....	1
Library Science 301, 302, 305.....	9
Library Science Elective.....	3
Sociology 201.....	3
Special Methods.....	3
	35
Senior Year	
Education 402, 403, 404, 416, 420, 446.....	23
Elective.....	3
Health & Physical Education 150.....	2
Library Science Electives.....	3
Physical Science.....	3
	34
TOTAL SEMESTER HOURS.....	133

LIBRARY SCIENCE CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, 201.....	9
Foreign Language.....	6
Health & Physical Education Activities.....	2
History 101, 102.....	6
Mathematics 107, 108, 109.....	6
Science.....	3
	32
Sophomore Year	
English 202.....	3
Foreign Language.....	6
History 201, 202 or Political Science 201, 302.....	6
Library Science 201, 210, 303.....	9
Health & Physical Education.....	2
Science.....	3
Speech 110.....	3
	32
Junior Year	
Library Science 301, 302, 305.....	9
Library Science Elective.....	3
Science.....	4
Electives or minor.....	16
	32
Senior Year	
Education 420.....	3
Library Science Elective.....	6
Science.....	2

Electives or minor.....	21
	32
TOTAL SEMESTER HOURS.....	128
Electives to be chosen from the following: Library Science 315, 330 410, 440, 450	

MATHEMATICS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101.....	1
English 101, 102, 201.....	9
Health & Physical Education Activities.....	3
History 201, 202.....	6
Mathematics 111, 112, 230.....	9
Speech 110.....	3
	31
Sophomore Year	
Botany 101.....	4
Education 200.....	3
Elective.....	3
English 202.....	3
Health & Physical Education 290.....	3
Health & Physical Education Activity.....	1
Mathematics 231, 232, 113.....	9
Psychology 206.....	3
Zoology 105, 112.....	4
	33
Junior Year	
Education 356, 380, 390.....	7
Electives.....	7
Mathematics 318, 401, 307.....	9
Physics 205, 206.....	6
Political Science 201.....	3
	32
Senior Year	
Education 402, 403, 404, 416.....	17
Electives.....	9
Health & Physical Education 150.....	2
Mathematics Electives.....	6
Social Studies Elective.....	3
	37
TOTAL SEMESTER HOURS.....	133

MUSIC EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101.....	1
English 101, 102.....	6
Mathematics 107, 108.....	4
Health & Physical Education Activity.....	1
Music (Applied).....	11
Music 102, 103, 104, 108, 109, 110.....	9
Speech 110.....	3
	35
Sophomore Year	
Political Science 201.....	3
Education 200.....	3
English 201.....	3
Health & Physical Education Activity.....	1
History 201, 202.....	6
Mathematics 109.....	2

Music (Applied)	6
Music 201, 202, 203, 317, 318, 319	12
	36
Junior Year	
English 202	3
Education 380, 390	4
Health & Physical Education Activity	1
Music (Applied)	9
Music 304, 310, 303 or 314	8
Physical Science Elective	3
Physics 465	3
Biological Science	3
Psychology 206	3
	37

Senior Year	
Education 402, 403, 404, 416, 465 or 466	20
Health & Physical Education Activity	1
Music (Applied)	4
Music 204, 305 or 306	3
Science Elective	3
Social Science Elective	3
	34

TOTAL SEMESTER HOURS 142

After completing the curriculum, the graduate will be eligible for certification from the State Department of Education to teach vocal and/or instrumental music in schools, depending upon the applied music elected. Upon entrance, the student will declare the particular certification desired.

For those desiring certification to teach music, the distribution of work taken in applied music must be in accordance with one or more of the plans listed above. The plan, or plans, pursued will be determined by individual desire for certification.

The curriculum for Vocal and Instrumental Certificate includes both Music 303 and 314, Education 465 and 466, and 20 additional music hours. Ensemble requirements for Music Majors listed under the College of Arts and Sciences should be noted.

PSYCHOLOGY CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102	6
History 101, 102 or 201, 202	6
3 Mathematics 110	3
Speech 110	3
Psychology 102, 202	6
Zoology 105, 112	4
Health & Physical Education	2
Electives	3
	33

Sophomore Year	
English 201, or 202, 303 or Journalism 101	6
Health & Physical Education	2
Psychology 300, 301, 302, 304	12
Sociology 201	3
Political Science 201	3
Zoology 225	3
Psychology Elective	3
	32

Junior Year	
Psychology 307, 310, 312, 321	12
Business Law 355	3
Psychology 461	3
Management 311	3
Special Education 300	3
Sociology 202	3
Electives	4
	33

Senior Year	
Psychology 407, 418, 450, 465 or 400	12
Psychology Elective	3
Counseling 400	3
Electives	13
	30

TOTAL SEMESTER HOURS 129

Requirements for a minor in Psychology: 21 hours approved by the Psychology advisor

SCIENCE EDUCATION CURRICULUM

Freshman Year	Semester Hours
Botany 101	4
Chemistry 101, 103	4
Education 101	1
English 101, 102	6
Health & Physical Education Activities	2
Geology 111, 121	4
Mathematics 111, 112	6
Speech 110	3
Zoology 111, 112	4
	34

Sophomore Year	
Bacteriology 210	3
Biological Science Elective	3
Chemistry 102, 104	4
Education 200	3
English 201, 202	6
Health & Physical Education Activities	2
History 201	3
Political Science 201	3
Psychology 206	3
Zoology 115	4
	34

Junior Year	
Biological Science Electives	6
Education 352, 380, 390	7
Geology 112, 122	4
History 202	3
Physics 360, 361	8
Physical Science Electives	6
	34

Senior Year	
Education 402, 403, 404, 416	17
Electives	9
Health & Physical Education 150	2
Social Studies Elective	3
	31

TOTAL SEMESTER HOURS 133

Physical science electives must be taken in the same discipline — chemistry, geology, or physics.

SOCIAL STUDIES EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 101, 102, 201	9
Mathematics 107, 108	4
Science Elective	3
Speech 110	3
	34
Sophomore Year	
Education 200	3
English 202	3
Geography 203, 230	6
Health & Physical Education 150	2
Health & Physical Education Activity	1
History 202	3
Mathematics 109	2
Physical Science Elective	3
Science Elective	3
Sociology 201	3
Psychology 206	3
	32
Junior Year	
Economics 100 or 200, 215	6
Education 380, 390, 353	7
Elective	3
Geography Elective	3
Health & Physical Education Activity	1
History 460	3
Sociology Elective	3
Political Science 201, 304	6
	32
Senior Year	
Education 402, 403, 404, 416	18
Elective	9
History Electives	6
Library Science 305	3
	36
TOTAL SEMESTER HOURS	134

SPANISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201	9
Foreign Language 160, 161, 260	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108	4
Speech 110	3
	34
Sophomore Year	
Biological Science	3
Education 200	3
English 202, 422	6
Elective	3
Foreign Language 261, 360, 361	9
Health & Physical Education Activities	2

Mathematics 109	2
Physical Science Elective	3
Science Elective	3
	34
Junior Year	
Education 351, 380, 390, 402	9
Electives	6
Foreign Language Electives (Spanish)	9
Health & Physical Education 290	3
Psychology 206	3
Science Elective	3
	33
Senior Year	
Education 403, 404, 416	15
Electives	6
Foreign Language Elective (Spanish)	3
Health & Physical Education 150	2
Political Science 201	3
Social Studies Elective	3
	32
TOTAL SEMESTER HOURS	133

SPECIAL EDUCATION CURRICULUM

Students will select one of the following areas of specialization; Preschool Handicapped, Mild/Moderate-Elementary, Mild/Moderate-Secondary or Severe/Profound.

Freshman Year	Semester Hours
Botany 225	3
Education 110	1
English 101, 102	6
Geography 203	3
Health & Physical Education Activities	2
Health & Physical Education 150	2
History 201	3
Physics 205	3
Speech 110	3
Social Science Elective	3
Zoology 111	3
	33
Sophomore Year	
Education 200	3
English 201, 202	6
Home Economics 223	2
Library Science 201	3
Math 303, 304	6
Psychology 204, 205/206	6
Science Elective	3
Social Science Elective	3
Special Education 300	3
	35
Junior Year	
Counseling 400	3
Education 323*, 324, 471*, 472*	6-9
History 460	3
Special Education* 301, 302, 305, 340, 341, 375, 460, 461, 462, 463, 464, 465, 470, 471	22-25
	34
Senior Year	
Education 390, 402, 420, 420*	9-12
Health & Physical Education 418, 418*	3

Special Education 475, 477*, 480*, 481*, 490*, 495*	13-16
.....	—
	28

TOTAL SEMESTER HOURS 130

*Mild/Moderate-Elementary: Psy 205, Educ. 323, Educ. 420 (E), Educ 472, Library Science 201, Special Educ. 301, 302, 340, 341, 375, 475, 490, 495.

*Mild/Moderate-Secondary: Psy. 206, Special Educ. 471, 472, Educ. 472, Delete Educ. 323, Library Science 201.

*Severe/Profound: Psy. 408, Special Educ. 302, 305, 340, 375, 464, 465, 477, 490, 496, HPE 419, Counseling 400, Educ. 471.

*Pre-School Handicapped: Special Educ. 460, 461, 462, 463, 464, 69 480, HPE 414, 418, Home Econ. 301, 411, 412.

*Elementary Education: Additional Courses: Art 101, 102, Music 230, 234, Educ. 320, 322, 416, HPE 340.

SPEECH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
Elective	3
English 101, 102, 201	9
Health & Physical Education Activities	2
Mathematics 107, 108, 109	6
Speech 110, 201, 340	9
.....	—
	33
Sophomore Year	
Education 200	3
Electives	6
English 202	3
Health & Physical Education 150	2
Health & Physical Education Activity	1
History 201, 202	6
Science Electives	6
Speech 200, 211	6
Speech Elective	3
.....	—
	36
Junior Year	
Education 354, 380, 390	7
Health & Physical Education 290	3
Health & Physical Education Activity	1
Library Science 305	3
Physical Science Elective	3
Political Science 201	3
Psychology 206	3
Speech 315, 406, 407	9
Speech Elective	3
.....	—
	35

Senior Year	
Education 402, 403, 404, 416	17
Electives	6
Social Studies Elective	3
Speech 416	3
.....	—
	28

TOTAL SEMESTER HOURS 133

SPEECH, LANGUAGE, AND HEARING THERAPY CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201 or 202	9
History 201, 202	6
Health & Physical Education Activities	2
Mathematics 107, 108, 109	6
Speech 110, 202, 210, 222	10
Zoology 111	3
.....	—
	37
Sophomore Year	
Education 200	3
Physics 205, 465	6
Political Science 201	3
Psychology 204	3
Special Education 300	3
Speech 411, 413, 418, 420, 470	15
Zoology 225	3
.....	—
	36
Junior Year	
Education 323, 324	6
English 332	3
Psychology 205, 206	6
Social Studies Elective	3
Speech 312, 412, 443, 444, 445, 465	17
.....	—
	35
Senior Year	
Counseling 400	3
Education 355, 390, 416	13
Health & Physical Education 150	2
Psychology 310	3
Special Education 490	3
Speech 425, 446	6
.....	—
	30
TOTAL SEMESTER HOURS	138

College of Engineering

OFFICERS OF INSTRUCTION

JACK THIGPEN, Dean
H. L. HENRY, Associate Dean
JACKIE W. D. ROBBINS, Head, Department of Agricultural Engineering
DUANE F. BRULEY, Head, Department of Biomedical Engineering
JAMES W. MALONE, Head, Department of Chemical Engineering
JOE R. WILSON, Head, Department of Civil Engineering
MILTON R. JOHNSON, Head, Department of Electrical Engineering
LEO A. HERRMANN, Head, Department of Geosciences
H. L. HENRY, Acting Head, Department of Industrial Engineering and Computer Science
R. D. HOLSTEAD, Head, Department of Mechanical Engineering
R. M. CARUTHERS, Head, Department of Petroleum Engineering
RANDALL F. BARRON, Director, Division of Research
BOBBY E. PRICE, Director, Graduate Studies
GROVER J. TRAMMELL, Director, Continuing Engineering Education
CHARLES N. SCHROEDER, Coordinator, Computer Science
RONALD H. THOMPSON, Director, Nuclear Center
CALVIN A. LEMKE, Freshman Advisor

GENERAL INFORMATION

HISTORY AND ORGANIZATION

Engineering education at Louisiana Tech University began in 1895 with a two-year program in Mechanic Arts. In 1910 this program was expanded to a Bachelor of Industry degree in General Engineering. Four-year engineering curricula developed rapidly as follows: 1921 -BS in General Engineering; 1927-BS in Mechanical-Electrical and BS in Civil Engineering; 1939-BS in Mechanical and separate BS in Electrical Engineering; 1940-BS in Chemical Engineering; 1948-BS in Petroleum Engineering; 1955-BS in Geological Engineering; 1957-BS in Industrial Engineering; 1972-BS in Biomedical Engineering; 1976-BS in Agricultural Engineering moved from Life Sciences.

Other bachelors degrees developed as follows: 1953-Geology; 1968-Construction Technology; 1968-Computer Science; 1972-Electro-Technology.

In recent years, two-year technology programs developed as follows: 1970-Land Surveying; 1973-Environmental, Instrumentation, Petroleum, Drafting, and Pulp and Paper; 1974-Mechanical.

Graduate education began in 1958 with the Master of Science degree (Engineering and in Geology). In 1968 the Ph.D. degree in Engineering was offered. In 1979 the practice-oriented Doctor of Engineering was offered. In 1980 the Master of Science in Computer Science was offered.

Academic programs in this College have undergone many changes, including some deletions. Current offerings are fully described in this catalog.

ACCREDITATION

All engineering curricula are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, (ABET), and all four-year engineering technology curricula are accredited by the Technology Accreditation Commission of ABET.

DEGREES

Associate of Science in: Instrumentation Technology, Land Surveying Technology, Mechanical Engineering Technology, Petroleum Engineering Technology, and Drafting Technology. These programs are administered by the College of Engineering and are listed in this bulletin under the Division of Admission, Orientation, Basic and Career Studies.

Bachelor of Science: Agricultural Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Science, Construction Engineering Technology, Electrical Engineering, Electrical Engineering Technology, Geology, Industrial Engineering, Mechanical Engineering, and Petroleum Engineering.

HIGH SCHOOL PREPARATION

The best high school preparation for a student planning to enroll in a curriculum offered by the College of Engineering is listed below. However, many students who do not have this background are able to successfully complete the requirements for a degree.

English, 4 units; Algebra, 2; Plane Geometry, 1; Trigonometry, 1/2; Chemistry, 1; and Physics, 1

ADMISSION

All beginning freshmen who plan to major in a curriculum offered by the College of Engineering are required to enroll in the Division of Admissions, Orientation, Basic and Career Studies. Students majoring in Associate Degree (two year) curricula stay in the Division of Admission, Orientation, Basic and Career Studies until they graduate. A student majoring in a Bachelor of Science curriculum offered by the College of Engineering transfers to a department in the College of Engineering when the student has demonstrated satisfactory scholastic achievement by earning a specified grade point average and has demonstrated a satisfactory achievement in mathematics.

All beginning students, regardless of high school preparation, planning to major in a curriculum offered by the College of Engineering are required to demonstrate satisfactory achievement in algebra and trigonometry by passing an examination that is given by the Mathematics Department. This examination is given the first day of each quarter and the first day of each Summer Orientation Registration Session. For the exact date, time and place the student should refer to the calendar printed in the front of this Bulletin or to the Orientation Brochure of the University. A beginner who does not take the test is not allowed to enroll in a mathematics course. Students who do not demonstrate satisfactory achievement in algebra and trigonometry on the test are required to enroll in mathematics courses specified by the Freshman Advisor.

The scholastic achievement required in order to transfer from Admissions, Orientation, Basic and Career Studies to the College of Engineering is as follows.

The student must not be on scholastic probation and must have earned credits and a grade point average as follows:

if after one quarter, 8 hours and 3.0 grade point average; if after two quarters, 16 hours and 2.5 grade point average; if after three quarters, 24 hours and 2.0 grade point average; if after four or more quarters, a 2.0 grade point average on hours pursued, or the student may be admitted by the Dean of the College of Engineering

SCHOLASTIC REQUIREMENTS

The College of Engineering is aware of its responsibility in preparing men and women for public service; therefore, it must protect the public by requiring high standards of achievement for those students to whom it gives its approval. Since the sciences, especially physics, chemistry, and mathematics, and the communication skills are the basis of any sound engineering or scientific curriculum, satisfactory work is essential in these departments during the first two years.

A student enrolled in the College of Engineering must meet the University scholastic standards described elsewhere in this bulletin, and the student must comply with the standards described below.

In order to remain in good standing in the College of Engineering, the student must not be on probation and must maintain a grade point average of 2.0 or higher for the total pursued semester hours. A student who has been enrolled for six quarters or more will be allowed to continue in the College of Engineering if the student is not in good standing, provided the student's overall grade point average is 1.75 or higher on the total semester hours pursued.

The College of Engineering reserves the right to accept toward graduation only credits with a C or higher grade. If a student receives a grade of D or F in any mathematics, computer science, geology, engineering or engineering technology course in the student's curriculum that is a prerequisite for another required course in the curriculum, the course must be repeated before proceeding in the sequence.

During any quarter in which a student is on scholastic probation the student may enroll in no more than 9 semester hours.

ENGINEERING PROFESSIONAL STANDARDS

Students in the College of Engineering are preparing to enter a profession which demands high ethical standards and practices by its members. The faculty and students of the College of Engineering are encouraged to abide by the "Code of Ethics" of the Louisiana Engineering Society which contains the following statements:

"The engineer, to uphold and advance the honor and dignity of the engineering profession and in keeping with high standards of ethical conduct

will be honest—

will be guided by the highest standards of integrity—

will not compete unfairly with another engineer—

will give credit for engineering work to those to whom credit is due"

Honesty and high ethical standards are demanded of students who are enrolled in the College of Engineering, and it is the student's right and responsibility to discourage unethical conduct. The Student Committee for Ethics promotes high ethical standards among the engineering student body, and unethical acts may be reported to this committee or the faculty.

GRADUATION REQUIREMENTS

In addition to the requirements listed in the General Information section of this bulletin, an engineering major must have a C average or better in his/her major field, calculated on the semester hours earned basis.

A major in the College of Engineering must earn at least 27 of the last 36 hours of the curriculum while registered in the curriculum major in the College of Engineering.

ELECTIVES

All electives must be approved by the appropriate department head. A free elective cannot be a prerequisite for a course specifically required in a student's curriculum.

TRANSFER STUDENTS

A candidate for admission to the College of Engineering by transfer from another institution or college must submit a satisfactory record in scholarship and in conduct from the institution (s) or college (s) from which the student wishes to transfer.

If, in the judgment of the department head evaluating the transcript, the courses satisfactorily passed cover in time and content certain of the required courses in the College of Engineering curriculum which the student expects to enter, equivalent credit will be allowed. Students must have an overall grade point average of 2.0 in all courses for which transfer credit is allowed.

Transfer students having completed six or more quarters (or equivalent semesters) of college work will be required to have an overall 2.0 grade point average on hours pursued. A one-year probationary period will follow entrance, during which time an overall 2.0 grade point average on hours pursued must be maintained in required courses, or the student will not be allowed to continue in the College of Engineering.

NON-ENGINEERING MAJORS

A non-engineering major who meets prerequisite requirements may take without special approval from the Dean of Engineering the following engineering courses: Any departmental courses numbered 100, Engineering 151, 300, 401, 431, Agricultural Engineering 105, 110, 206, 209, 210, 211, 214, 215, 216, 303, 320, 340, 415, 418, Biomedical Engineering 200, Electrical Engineering 203, 326, Industrial Engineering 201, 301, Petroleum Engineering 200, Mechanical Engineering 200, 251, or any engineering course required in the student's curriculum.

A non-engineering major who meets prerequisite requirements and who obtains written approval from the Dean of Engineering (or the Dean's representative) may (a) take any one engineering course per quarter, or (b) take any two engineering courses per quarter if the student has maintained an over-all grade point average of 2.0 on hours pursued and has not previously failed to meet scholastic requirements while enrolled as a student in the College of Engineering.

MILITARY STUDIES CREDIT IN ENGINEERING CURRICULA

The various engineering curricula make provision for use of credit for Air Force Aerospace Studies to the following extent:

For engineering students enrolled in the Air Force ROTC program the lower division courses in Air Force Aerospace Studies will be accepted upon approval of the major department head and dean in lieu of 3 hours of free elective.

The twelve semester hours of advanced Air Force Aerospace Studies, when successfully completed, will be accepted upon approval of the major department head and dean, for three semester hours of humanistic — social elective credit toward the engineering degree being pursued. Should the student, upon successful completion of the first six semester hours of advanced studies, be prevented from enrolling in and completing the remaining six semester hours, credit shall be granted upon approval of the major department head and

dean for the aforementioned three semester hours of elective credit.

The above rules will be interpreted within the following rulings:

1. A student whose military contract with the Air Force ROTC is voided for reasons beyond the student's control will receive credit in the curriculum for advanced ROTC courses completed.

2. A student whose military contract with the Air Force ROTC is voided for reasons within the student's control, including poor scholarship and misconduct, will not receive credit in the curriculum for advanced ROTC courses completed.

Students in the Naval Reserve Officer Candidate program may obtain a maximum of three semester hours of humanistic-social elective credit for the successful completion of one or more eight-week summer training periods at the Officer Candidate School, Newport, Rhode Island, provided:

1. The chief of Naval Personnel, upon the request of the individual student, forwards an official transcript to the Registrar, and

2. The major department head and the Dean of Engineering approve.

Students in the Marine Platoon Leaders Class (MPLC) program may obtain a maximum of three semester hours of humanistic-social elective credit for the successful completion of one or more summer training terms provided:

1. The military Personnel Procurement Branch, Headquarters, U. S. Marine Corps, upon the request of the individual student, forwards an official transcript to the Registrar, and

2. The major department head and the Dean of Engineering approve.

EXPENSES

In addition to the regular collegiate expenses, the student in engineering is required to purchase drawing equipment and a pocket electronic calculator of a quality approved by the faculty. All students enrolled in the College of Engineering are required to pay each quarter the subscription cost of the "Tech Engineer" and membership dues in the Louisiana Tech Engineers' Association. All students, on reaching the junior level, should have free access to a typewriter for the purpose of preparing laboratory and other reports. Graduating seniors in the College of Engineering are required to complete a Graduate Data Form and to supply the Office of the Dean with three recent application-type photographs approximately 2" x 2 1/2".

CORRESPONDENCE COURSES

Students in the College of Engineering are permitted to include no more than six semester hours of correspondence courses for credit toward graduation in any curriculum. Prior to pursuing the correspondence work the student must obtain written approval of the Dean of Engineering. Approval will be granted only for courses in humanities and social studies. (All English courses are excluded.)

CREDIT BY EXAMINATION

Students of exceptional scholastic achievement are allowed to take subject credit examinations in some of the courses required for a degree. The University has specific regulations controlling subject examinations, and these regulations are printed elsewhere in this Bulletin. A student in the College of Engineering may earn up to a maximum of 30 semester hours by credit examination.

The College of Engineering will not accept any credits earned by passing the CLEP General Examination if the CLEP General Examination is taken after May 31, 1979.

STUDENT ORGANIZATIONS

The following organizations are available for student participation:

Louisiana Tech Engineers' Association, Student Branch of the American Society of Agricultural Engineers, Student Chapter of the Association of Biomedical Engineers, Student Chapter of the American Institute of Chemical Engineers, Student Chapter of the American Society of Civil Engineers, Student Chapter of the Association for Computing Machinery, Student Branch of the Institute of Electrical and Electronics Engineers, Louisiana Tech Geological Society, University Chapter of the American Institute of Industrial Engineers, Student Section of the American Society of Mechanical Engineers, Student Chapter of the Society of Petroleum Engineers of A.I.M.E., Student Chapter of the Associated General Contractors of America, The Society for the Advancement of Black Engineers, and Society of Women Engineers.

STUDENT HONOR SOCIETIES

The following honor societies are available to those students who excel academically and are elected to membership:

Alpha Pi Mu—Industrial Engineering Honor Society; Chi Epsilon—Civil Engineering Honor Fraternity; Eta Kappa Nu—Electrical Engineering Honor Society; Omega Chi Epsilon—Chemical Engineering Honor Society; Upsilon Pi Epsilon—Computer Science Honor Society; Pi Epsilon Tau—Petroleum Engineering Honor Society; Pi Tau Sigma—Mechanical Engineering Honor Fraternity; Sigma Gamma Epsilon—Earth Sciences Honor Society; Tau Beta Pi—all engineering; Tau Alpha Pi—all technology.

ENGINEERING SCHOLARSHIPS

The College of Engineering has been very fortunate in recent years in attracting donations of money to be used for scholarships. Funds have been donated by corporations, foundations and individuals. Some of this money is restricted and must be awarded by departments receiving the money. The unrestricted funds are administered by a committee appointed by the Dean of Engineering. Also, some University scholarships are available.

If a student wishes information about a scholarship, the inquiry should be sent as follows:

University Scholarship..... Director of Financial Aid
College of Engineering Scholarship.... Dean of Engineering
Departmental Scholarship..... Department Head of the specific department in the College of Engineering.

DIVISION OF ENGINEERING RESEARCH

The Division of Engineering Research was created in 1953 in recognition of the importance of fundamental and applied research to the world of technology and to the professional development of a competent faculty. The purpose of the division is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The activities of the division are directed by the Research Coordinating Committee, composed of the Engineering Academic Department Heads with the Director of Engineering Research serving as chairman of the group. This committee is responsible to the Dean of Engineering.

The financial support of research projects is derived from two primary sources: (a) the operating budget of the Research Department, and (b) sponsorship of a project by an interested outside agency.

ENGINEERING GRADUATE STUDIES

The College of Engineering offers the Master of Science with majors (specializations) available in Agricultural, Biomedical,

Chemical, Civil, Electrical, Industrial (with an Operations Research option), Mechanical and Petroleum Engineering. The Master of Science is offered in both Computer Science and Geology.

The Doctor of Philosophy Degree in Biomedical Engineering and the Doctor of Engineering Degree are offered.

For information about graduate studies, contact the Director of Engineering Graduate Studies, Louisiana Tech University, Ruston, LA, 71272.

THE COOPERATIVE PLAN

The College of Engineering is cooperating with certain industrial firms in a plan of alternate periods of work and university study for students in engineering. The Cooperative Plan provides one of the best methods for integrating technical theory and practical industrial experience in a five-year educational program. Another important purpose for maintaining the Cooperative Plan is to provide financial support for engineering students who find it financially difficult to complete their formal education. Through this program it is possible for students to earn a large part, or possibly all, of their college expenses.

Although the College of Engineering cannot guarantee work or stipulate compensation, an effort will be made to place the students in their best educational and financial advantage. The Cooperative Plan will allow the student to have approximately a year of practical experience by the time of graduation. If the student accepts permanent employment with the cooperating company, the necessity for taking special company orientation and training courses after graduation is usually eliminated. The Cooperative Plan graduate is not obligated to accept employment with the cooperating company, nor is the company obligated to offer permanent employment.

Each student participating in the Cooperative Plan is required to register at Louisiana Tech during the work phase.

Students from any department within the College of Engineering will be considered for participation in the Cooperative Plan provided they have successfully completed three quarters of university work with a grade point average of at least 2.5 and are specifically recommended by the head of the department in which they plan to complete the requirements for a degree. Requirements for graduation and the degree earned are the same as those for regular students. Individuals interested in further details should contact the Director of the Cooperative Plan, College of Engineering, Louisiana Tech University, Ruston, LA, 71272.

DIVISION OF CONTINUING ENGINEERING EDUCATION

The Division of Continuing Engineering Education sponsors and coordinates various special programs other than the regular academic and research programs. These include conferences, short courses, lectures, seminars, continuing education programs, and summer institutes. These programs are designed to aid practicing engineers, technicians, and others to keep abreast of the latest developments in the rapidly expanding technical fields. Some are offered regularly on a periodic basis while others are offered on demand. Anyone desiring the offering of any special course should contact the Director of Continuing Engineering Education, Louisiana Tech University, Ruston, LA, 71272.

DEPARTMENTAL INFORMATION ENGINEERING FRESHMEN

All first-term freshmen enter the Division of Admissions, Orientation, Basic and Career Studies. Those freshmen who plan to pursue engineering curricula (excluding Computer

Science, Geology and all technology curricula) will be advised by the engineering freshmen advisor. Because the freshman year is common for all engineering students, a student may complete one year of study before selecting a specific engineering curriculum.

FRESHMAN ENGINEERING CURRICULUM

Chemistry 101, 102, 103, 104	8
Engineering 151	2
English 101, 102	6
Mathematics 230, 231, 232	9
Departmental Orientation Course	1
Humanistic-Social Courses*	6

32

Students who have decided on a departmental major should enroll in the engineering orientation course offered by that department.

*These courses must be approved by the Advisor.

AGRICULTURAL ENGINEERING

Agricultural Engineering serves exclusively the engineering needs of the world's largest and most basic industry—agriculture. It is engineering that applies energy, materials and mechanisms to multiply the effectiveness of man's activities. And it is Agricultural Engineering that applies these to improve the effectiveness of the food and fiber industry.

The Agricultural Engineering Curriculum is designed to give the student basic preparation in both engineering and agriculture; broad education in the biological, physical and social sciences; and fundamental experience in the application of engineering principles to the diverse and unique requirements of biological systems. The curriculum is organized to present a general knowledge of all major phases of Agricultural Engineering: power and machinery; structures and environment; soil and water conservation; electric power and processing; and food engineering. By judiciously selecting electives, the student can specialize in such areas as forest engineering, biological engineering, aquacultural engineering, ecological engineering, land use engineering, food engineering, environmental engineering and safety engineering.

Graduates of the Agricultural Engineering Curriculum are broadly prepared to understand natural phenomena and to apply the fundamentals of engineering, plant, soil and animal sciences to the production, transportation, processing and distribution of agricultural products and to the conservation of our natural resources. Their unique background in pure and applied life sciences combined with a strong preparation in mathematical, physical, earth and engineering sciences qualifies them to deal creatively with the growing engineering challenge of producing more and better food and fiber for an increasing population at reasonable costs while maintaining high quality of the environment.

Graduates of this curriculum work as engineers in a wide variety of governmental agencies and private industries. They are also prepared to study toward higher degrees in Agricultural Engineering. Some pursue advanced training in professional schools such as law, medical, business and in other branches of engineering.

AGRICULTURAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32

Sophomore Year	
Agricultural Engineering 186, 217, 266, 276, 286	6
Agronomy 200, 202	4
Botany 101, 104	4
Electrical Engineering 213	3
Engineering 102	2
Engineering Mechanics 211	3
Mathematics 330, 350	6
Physics 201, 202	6

34

Junior Year	
Agricultural Engineering 301, 307, 308, 315	10
Economics 215	3
Engineering Mechanics 203, 311, 321	8
English 303	3
Mathematics Elective (300 or 400 level)	3
Mechanical Engineering 315, 316	4
Speech 377	3

34

Senior Year	
Agricultural Engineering 403, 405, 418, 470	11
Engineering 425	1
Humanities and Social Sciences Elective	8
Technical Elective	15

35

TOTAL SEMESTER HOURS 135

All electives must effect a rationale and be approved by the Head of the Department.

BIOMEDICAL ENGINEERING

Biomedical Engineering is formally defined as that field which deals with the interaction between the engineering sciences and biology and medicine. The nature of the undergraduate program at Louisiana Tech University combines the practical aspects of engineering with biology and medicine to produce a new type of engineer capable of solving engineering problems. The program allows medical and biological instruction to be obtained in the life sciences (i.e., general biology, comparative anatomy, physiology, etc.) and engineering instruction to be obtained from selected standard engineering courses. The biological training is combined with the engineering training by means of a series of coordinated biomedical engineering courses taught at the sophomore, junior and senior academic levels.

The training program that leads to a Bachelor of Science degree in Biomedical Engineering is designed along broad lines to permit a student to obtain an overall education in Biomedical Engineering, and a specialty in one of the following areas: electronics, systems analysis or design.

The biomedical engineers of today are working in many rewarding areas. For example, some are involved in the design and construction of artificial internal organs; others are clinically involved in the electronics and instrumentation associated with hospital operating rooms, intensive care rooms and automated clinical laboratories; others are involved in biomedical computer systems; others are applying the engineering abilities toward the rehabilitation of handicapped persons; and some are conducting basic research using engineering analysis principles aimed at understanding the basic mechanisms that regulate the human body. Employment opportunities for biomedical engineers exist in hospitals, national research foundations, governmental research institutes, chemical companies, pharmaceutical companies, and the electronics and computer industries.

One special feature of the Biomedical Engineering Program is that upon graduation, or at the end of the first three years of study, the student will have completed the basic requirements necessary for admission to medical school. The program provides strong quantitative background for one who wishes to pursue a future medical career.

A clinical engineering internship program has been developed with hospitals in the state. The program is optional, and the student may spend one quarter of study in the hospital system.

Another feature of the program is that upon completion of the Biomedical Engineering degree program in any of the specialties, the student will be adequately prepared to continue their education at the graduate level by pursuing either a Master of Science and/or the Doctor of Philosophy degree in Engineering.

BIOMEDICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32

Sophomore Year	
Biomedical Engineering 201, 210	6
Mathematics 330	3
Physics 201, 261, 202, 262	8
Zoology 111, 112	4
Electrical Engineering 213	3
Engineering 102	2
Engineering Mechanics 201	2
Economics 215	3
English 303	3

34

Zoology 202	4
Chemistry 250, 251	4
Technical Elective	9
Speech 377	3
Biomedical Engineering 301, 320	6
Mathematics 350	3
Electrical Engineering 354	3
Engineering Mechanics 301	2

34

Senior Year	
Biomedical Engineering 401, 402, 403, 425	12
Engineering 425	1
Technical Elective	9
Zoology 320, 321	4
Humanistic-Social Studies	6
English 201 or 202	3

35

TOTAL SEMESTER HOURS 135

All electives must be approved by the Head of the Department of Biomedical Engineering. Humanities or social science electives are to be selected from courses offered in the Department of Art, Economics, English, Foreign Languages, or Social Sciences. Technical electives are to be selected from courses offered in the Departments of the College of Engineering; 12 of the semester hours must be in the area of engineering sciences and 6 semester hours must be in the area of engineering design. (A minimum of four semester hours of credit is required in thermodynamics.) The student must select, in conjunction with the Department Head, a series of courses consisting of a minimum of 12 hours which specialize in one of the following areas:

a) Electronics

- b) Design
- c) Systems analysis

At the end of the ninth quarter, the student can complete the basic requirements necessary for admission to medical school and may elect to apply for entrance at that time.

One quarter may be spent as a clinical engineering intern in an associated hospital.

CHEMICAL ENGINEERING

Chemical Engineering is that branch of engineering concerned with the development, application, and operation of the manufacturing process in which chemical and/or certain physical changes of material are involved. The work of the chemical engineer is to develop, design, construct and supervise the operation of equipment and plants in which raw products are processed into finished bulk chemicals. A chemical engineer is one who can make scientific applications of mathematics, physics, chemistry, and chemical engineering principles to the development, design, and safe, efficient operation of such equipment and plants within economic restraints.

The training of the chemical engineer must cover pure and applied sciences-chemistry, physics, mathematics, general engineering, analog and digital computer applications, and fundamental chemical engineering. The latter is best presented by a study of material balances, energy balances, equilibria, rates of reaction, and the associated equipment. These are the basic studies that may be applied to any industry. The study of many chemical processes are included in the laboratory and classroom work.

In order to meet newly developed interests in the chemical and related fields, elective courses are offered in radio-active isotopes, industrial waste treatment, specialized computer techniques and environmental problems.

The fundamental objective of the curriculum in chemical engineering is to prepare young men and women for careers in the field of chemical manufacturing and allied industries.

The graduate in chemical engineering enters industrial work as an engineer in the production or operating departments of chemical or allied plants (such as metals, paper, petroleum, plastics, forest products, pharmaceuticals or food processing), or in the technical service or process improvement sections of such industries. Additional opportunities exist in the research and development sections of such industries, or in private or governmental research organizations. Market research or technical sales service positions are also available. In all these endeavors, an engineering education has been established as a valid route to top management. Graduates also are prepared to enter graduate study at accredited schools throughout the nation.

CHEMICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
Sophomore Year	
Chemical Engineering 202, 254, 310, 321, 322	11
Chemistry 250, 251, 253, 254	6
Economics 215	3
Electrical Engineering 203 or Engineering 102	2
Mathematics 330, 350	6
Physics 201, 202	6
	34
Junior Year	
Chemical Engineering 301, 303, 351, 352, 355, 401	11
Chemistry 311, 312, 313, 314	8

Electrical Engineering 213	3
Engineering Mechanics 201, 301	4
English 201 or 202	3
Humanistic-Social Course	3
Speech 377	3
	35

Senior Year

Chemical Engineering 402, 403, 407, 432, 434, 451, 452	16
Engineering 401, 425	3
English 303	3
Technical electives	9
Humanistic-Social Course	3
	34

TOTAL SEMESTER HOURS 135

All electives must be approved by the Head of the Department of Chemical Engineering. Humanistic-Social electives are to be selected from courses offered in the fields of economics, fine arts, government, history, human geography, literature, philosophy, psychology, sociology, or advanced level foreign languages. Technical electives are to be selected from courses offered in the departments of the College of Engineering, or College of Life Sciences, or the Departments of Chemistry, Mathematics or Physics. Six of the nine elective hours must be selected from non-required engineering science courses offered by the Department of Chemical Engineering.

CIVIL ENGINEERING

The civil engineer is in the forefront providing construction counsel on matters vital to mankind. Most people can only talk about urban congestion, environmental pollution, droughts and floods. Civil engineers help to eliminate or greatly reduce the destructive power of these plagues. They are primarily responsible for planning, design, and construction of all the world's constructed facilities.

Approved by the Accreditation Board for Engineering Technology, the curriculum in civil engineering is designed to produce graduates who have the background necessary for the practice of civil engineering and the capacity for further development of mind and character to assume the highest responsibilities of citizenship and of professional engineering.

The up-to-date curriculum provides the fundamentals of engineering and teaches the application of those fundamentals in engineering design. It also develops the ability to communicate, and helps the student develop a personal value system and a sense of social responsibility and concern for the needs and problems of mankind and the environment today and in the future. Well-equipped laboratories enhance the classroom lectures: Environmental Engineering, Hydraulics, Materials Testing, Remote Sensing, Soil Mechanics, Stress Analysis and Surveying.

The graduate will have some competence in all of the following areas with emphasis on at least one: structural design, environmental pollution control, hydraulics, hydrology, surveying, transportation, and soils engineering.

CIVIL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
Sophomore Year	
Civil Engineering 244, 300	7
Economics 215	3
Electrical Engineering 213	3
Engineering 102	2
Engineering Mechanics 203, 211	5
Mathematics 308, 330	6

Physics 201, 202.....	6
Speech 377.....	3
	35
Junior Year	
Civil Engineering 302, 310, 314, 324, 332, 346, 391.....	20
Engineering Mechanics 311, 321.....	6
English 303.....	3
Geology 317.....	3
Mathematics 350 or	
Industrial Engineering 400.....	3
	35
Senior Year	
Civil Engineering 424, 437, 439, 443, 444.....	11
Engineering 401, 425.....	3
Humanistic Social Science Electives.....	9
Mechanical Engineering 315, 316.....	4
Technical Electives.....	6
	33
TOTAL SEMESTER HOURS	135

All electives must be approved by the head of the Department of Civil Engineering.

CONSTRUCTION ENGINEERING TECHNOLOGY

The construction industry accounts for 15 out of every 100 jobs and consumes more basic and finished materials than any other industry in the United States. It is essentially a service industry converting the plans and specifications prepared by engineers and architects into finished products. With increasing demand for its services the construction industry continues to expand technologically and geographically.

This four-year curriculum leading to the degree of Bachelor of Science in Construction Engineering Technology is offered by the Department of Civil Engineering. The program is accredited by the Accreditation Board for Engineering Technology and is in many ways similar to Civil Engineering but has the following major differences:

- Emphasis is on practical application of engineering science rather than upon the comprehensive understanding of the scientific theories.
- Considerable time is devoted to management and business administration courses.
- Much less time is devoted to mathematics and sciences.

Although not trained to be professional engineers, graduates of this program are qualified to fill many professional positions in construction departments of government agencies; in construction departments of industrial concerns; in manufacturers of construction supplies and equipment; and in construction firms. These jobs might involve contract supervision, inspection or sales as well as supervised design of construction projects. The undergraduate business and management training should provide a big asset in moving up the executive ladder to success.

CONSTRUCTION ENGINEERING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Accounting 203.....	2
Civil Technology 102.....	1
Economics 215.....	3
English 101, 102.....	6
Engineering 102.....	3

Engineering 151.....	2
Management 201.....	3
Mathematics 111, 112, 220.....	9
Communications/Humanities Elective.....	3
	31

Sophomore Year	
Civil Engineering 271, 273.....	6
Civil Engineering 210.....	3
Engineering Mechanics 206, 207.....	6
Mechanical Technology 215.....	3
Physics 209, 210, 261, 262.....	8
Statistics 200.....	3
Communications/Humanities Elective.....	3
	32

Junior Year	
Civil Technology 341, 343, 345, 372, 373.....	11
Electrical Engineering 326.....	3
English 303.....	3
Engineering 401.....	2
Mechanical Engineering 326.....	3
Speech 377.....	3
Communications/Humanities Elective.....	3
Math/Science Elective.....	3
	31

Senior Year	
Business Law 355, 356.....	6
Civil Engineering 437, 438.....	5
Civil Technology 471, 473, 475.....	9
Industrial Engineering 427.....	3
Math/Science Elective.....	3
Engineering Elective.....	6
	32

TOTAL SEMESTER HOURS 126

All electives must be approved by the Construction advisor.

LAND SURVEYING TECHNOLOGY

The Land Surveying Technology curriculum, a two-year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

ELECTRICAL ENGINEERING

Electrical Engineering is that profession which deals with the application of the fundamental laws of electrical phenomena to the service of mankind. Broadly, electrical engineers are involved in one or more of the following areas: electromagnetics; the design of electronic and solid state devices; the control, conversion and distribution of energy; computing and data processing; communication computing and data processing; communication and information transmission or retrieval.

The undergraduate Electrical Engineering Curriculum is a carefully planned program of study designed to meet the challenges of expanding professional opportunities. From foundations in the basic sciences of mathematics, physics and chemistry, the program progresses through the engineering sciences to emphasize the roles of mechanics, thermodynamics and electrical theory in the analysis, synthesis, design and operation of engineering elements. A coordinated laboratory program utilizing modern equipment and facilities seeks to supplement classroom instruction, stimulate creativity and further professional competence. Finally, a variety of courses

selected to provide an adequate humanistic and cultural background is included to insure both the recognition and fulfillment of the engineer's responsibilities as a citizen.

The curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET). Graduation from an ABET accredited program is one of the requirements for qualifying as a Registered Professional Engineer in Louisiana as well as most other states. If in addition to meeting the minimum requirements established for an ABET accredited curriculum the graduate has maintained a relatively good scholastic record, he/she may qualify for further study in the advanced degree program.

The College of Engineering offers the opportunity for graduate study leading to the degree of Master of Science. The program seeks to build on the basic foundations established by the undergraduate course of study. It is in large measure an individual matter developed jointly by the student and an advisory committee. The study plan may reflect a desire for more specialized undertakings or a continuing interest in the broad, underlying theories of the profession. In each case, the culmination of the program is the required graduate research project, with thesis or dissertation, accomplished with the aid and guidance of a research advisor. The Master of Science program requires approximately one year to complete when pursued on a full-time basis. Those who attain this advanced degree will find a wide range of opportunities for rewarding careers in many areas of business, industry, government and education.

ELECTRICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
Sophomore Year	
Electrical Engineering 202, 203, 205, 214, 302, 303.....	12
Engineering Mechanics 201.....	2
English 201 or 202.....	3
Mathematics 330, 350.....	6
Mathematics elective.....	3
Physics 201, 202, 261, 262	8
	34
Junior Year	
Economics 215.....	3
Electrical Engineering 301, 308, 309, 313, 353, 354, 355, 401.....	18
Engineering Mechanics 203, 301.....	4
English 303.....	3
Mechanical Engineering 315, 316.....	4
Physics 380.....	2
	34
Senior Year	
Electrical Engineering 420, 424, 426, 432, 442.....	15
Engineering 425	1
Speech 377	3
Humanities or Social Science Electives.....	9
Technical Electives.....	7
	35
TOTAL SEMESTER HOURS	135

All electives (Humanities, Mathematics, and Technical) must be approved by the Head of the Department of Electrical Engineering.

Mathematics electives must be selected from the following: Mathematics 308, 407, 414, 418, 445, 448.

Humanities or Social Science electives must be selected from courses offered in the Departments of Art, Economics, English, Foreign Languages, History or Social Sciences.

Technical electives must be selected from courses offered in the College of Engineering or in the Departments of Mathematics or Physical Science.

ELECTRICAL ENGINEERING TECHNOLOGY

The increasing complexity of the industrial processes and the expansion in research and production has created demand for a new group of specialists known as engineering technologists. These technologists work with professional engineers and scientists, or assume independent responsibility in the production, installation, operation and maintenance of complex technical apparatus. The engineering technologist organizes the personnel, materials and equipment to design, construct, operate and manage technical projects. The engineering technologist coordinates people, materials and machines, and must possess a variety of skills and practical and theoretical knowledge to get things done.

Electrical Engineering Technology includes the areas of computers, electrical power, communications, instrumentation and control systems. The program combines course work and coordinated laboratory work so that graduates will be capable of performing a variety of technical tasks demanded of them. The course and laboratory work emphasize the latest in solid state and integrated circuit and microprocessor technology throughout. The graduate will also have received training in technical writing, public speaking, documentation, and general industrial practices resulting in rapid advancement in a typical industrial organization. Thus, the program produces graduates qualified for a wide variety of commercial and industrial employment in the rapidly developing electrical-electronics technology field.

The program is accredited by the Accreditation Board for Engineering and Technology (ABET), formerly ECPD.

ELECTRICAL ENGINEERING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Electro-Technology 160, 161, 170, 171, 180, 181, 264.....	14
English 101, 102.....	6
Mathematics 111, 112, 220.....	9
Humanities or Social Science Electives.....	3
	32
Sophomore Year	
Electro-Technology 182, 260, 261, 270, 280, 284, 285.....	16
Electrical Engineering 203	2
Physics 209, 210, 261, 262	8
Technical Drafting 101	3
Humanities or Social Science Electives.....	3
	32
Junior Year	
Engineering Mechanics 206.....	3
Electro-Technology 262, 360, 361, 370, 371, 390.....	12
Basic Science Electives	4
English 303.....	3
Free Elective.....	3
Humanities or Social Science Electives.....	3
Mechanical Technology 215.....	3
	31

Senior Year	
Electro-Technology 460, 461, 470, 471, 472.....	7
Electro-Technology 465	2
Electro-Technology Elective	4
Free Electives	8
Humanities or Social Science Electives.....	3
Basic Science Elective.....	4
Speech 377.....	3

31

TOTAL SEMESTER HOURS 126

All electives must be approved by the Head of the Department of Electrical Engineering or an authorized representative.

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology curriculum, a two-year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of the catalog.

DEPARTMENT OF GEOSCIENCES

Geosciences encompasses many scientific disciplines including geology, geophysics, oceanography, geochemistry, and astrogeology. These fields touch every facet of modern civilization from the discovery of mineral wealth to the more exotic exploration of the moon and planets.

The Department of Geosciences at Louisiana Tech specializes in the education of geologists. In the past decade there has been a strong demand by the petroleum industry for Tech graduates and it is expected that this demand will continue. Employment opportunities are also available with the U. S. Geological Survey, the Environmental Protection Agency, and other branches of the Federal Government and state geological surveys. A number of geosciences majors participate in a Co-op program sponsored by the Water Resources Branch of the U. S. Geological Survey.

The department offers the bachelors and masters degrees in geology.

The Geology Curriculum is planned to give broad and fundamental preparation in the major areas of geology, with a background in mathematics, physics, chemistry, and biological sciences. It is designed for those students planning for a professional career in geology and the earth sciences.

Students in other departments who wish to minor in geology are required to take Geology 111, 112, 121, 122, 209, 302, 305, 315, and three additional hours of geology.

GEOLOGY CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102 103, 104	8
English 101, 102, 201 or 202.....	9
Geology 111, 112, 121, 122.....	8
Mathematics 111, 112.....	6

31

Sophomore Year	
Engineering 151	2
Geology 209, 210, 211.....	9
History 101 or 201, 102 or 202.....	6
Mathematics 230.....	3
Physics 209, 210, 261, 262	8
Zoology 111, 112	4

32

Junior Year	
Botany 101, 104.....	4

Civil Engineering 304	2
Computer Science 102	3
English 303.....	3
Geology 302, 305, 315, 316	11
Geology 320 (Summer Field Camp)	6
Electives.....	6

35

Senior Year	
Economics 215.....	3
Geology 408, 413, 421, 442.....	12
Speech 377.....	3
Electives.....	12

30

TOTAL SEMESTER HOURS 128

Electives to be chosen with consent of advisor.

INDUSTRIAL ENGINEERING

Industrial Engineering involves decision making related to the best use of people, material, equipment, and energy to achieve the goals of the organization. The organization may be an entire corporation, a hospital, a government office, an individual department, or any other group organized to make, produce or perform a service. Usually, the aims of the organization include reducing costs. Hence, the Industrial Engineer is often very much concerned with cost analysis and control.

If there is one phrase that summarizes the activities of Industrial Engineering it would have to be "the search for a better way." For example, a better way to perform assembly operations on a product, a better way to ship the product to the distributors, a better way to recover the cost of scrap from the manufacturing process, a better way to motivate employees, a better way to assure product quality and reliability, and so on.

For several years, national leaders have been calling for increased productivity by the American people. Industrial Engineers are specially trained to engage in efforts to bring about increased productivity, for finding a better way usually results in more productivity with the same, or less, effort on the part of the individual worker.

The Industrial Engineering Curriculum has been designed to prepare young men and women to find a meaningful career in this branch of engineering. The success of the program is evidenced by the accreditation granted by the Accreditation Board for Engineering and Technology, the demand for graduates by industry, government and others, and the professional activities of the faculty.

INDUSTRIAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32

Sophomore Year	
Economics 215.....	3
Electrical Engineering 213	3
Engineering 102	2
Engineering Mechanics 203, 211.....	5
Industrial Engineering 201, 301	6
Mathematics 330, Mathematics Elective.....	6
Mechanical Engineering 251	2
Physics 201, 202, 261, 262	8

35

Junior Year	
Engineering 401	2

Engineering Mechanics 311, 321	6
English 303.....	3
Industrial Engineering 400, 402, 409.....	9
Mathematics Elective.....	3
Mechanical Engineering 307, 309, 315, 316	10
Speech 377	3

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36

Senior Year	
Economics Elective	3
Engineering 425	1
Engineering Science Electives	3
Free Elective.....	2
Humanities/Social Studies Electives.....	6
Industrial Engineering 401, 404, 408, 411, 412, 424.....	14
Technical Elective.....	3

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32

TOTAL SEMESTER HOURS 135

All electives must be approved by the Head of the Department of Industrial Engineering and Computer Science.

COMPUTER SCIENCE

Computer Science at Louisiana Tech is the study of information processing systems. The curriculum is designed to meet three objectives: (1) a general education in mathematics, science, and the humanities; (2) a broad introduction to information processing systems, including the practical and theoretical aspects of the hardware (equipment) and software (procedures) of these systems; (3) an opportunity to prepare a base for specialization in an area of computer application.

Computer Science at Louisiana Tech places emphasis on the basic concepts of information processing systems and the development of professional techniques. The goal is to expose the student to a depth of knowledge sufficient to form the basis for professional competence and to promote the intellectual maturity required to keep abreast of developments in computer science and to interact with other disciplines.

Students in other departments who wish to minor in computer science are required to take Computer Science 102, 104, 106, 201, 206, 214, 303, 450, 451, and 453.

COMPUTER SCIENCE CURRICULUM

Freshman Year		Semester Hours
Computer Science 102, 104, 106	7	
English 101, 102.....	6	
Mathematics 111, 112, 230.....	9	
Humanities or Social Science Electives.....	3	
Science Electives.....	8	
—		33

Sophomore Year	
Computer Science 201, 206, 214	6
Economics 215.....	3
English 201 or 202.....	3
Mathematics 231, 232, 308.....	9
Humanities or Social Science Electives	3
Physics 209, 210, 261, 262	8

Junior Year	
Computer Science 303, 450, 452	8
Electrical Engineering 442	4
Industrial Engineering 400, 402	6

Mathematics 313.....	3
Humanities or Social Science Electives.....	3
Speech 377.....	3
Technical Electives.....	6
	<hr/>
	32

Senior Year	
Computer Science 424, 451, 453	7
English 303.....	3
Free Electives	6
Humanities or Social Science Electives.....	6
Technical Electives	8

TOTAL SEMESTER HOURS 127

All electives must be approved by the Head of the Department of Industrial Engineering and Computer Science.

DRAFTING TECHNOLOGY

The two-year Associate of Science degree Curriculum in Drafting Technology is described in the catalog under Division of Admissions, Orientation, Basic and Career Studies.

MECHANICAL ENGINEERING

The Curriculum in Mechanical Engineering is designed to give the student a basic knowledge of the fundamentals required in the field of mechanical engineering and to give an opportunity to develop ability to use these fundamentals in the analysis and solution of practical problems. This curriculum is approved by the Accreditation Board for Engineering and Technology, Inc., and provides a course of study of 12 quarters and leads to the degree of Bachelor of Science in Mechanical Engineering. Emphasis is placed on the basic studies of mathematics, chemistry, physics, and English. A number of courses in the social sciences and humanities are included to broaden the outlook of the student. The course work in engineering begins with a group of core courses that are fundamental to all branches of engineering and progresses into more advanced studies of particular interest to mechanical engineers. The Mechanical Engineering laboratories are well equipped and the instruction is planned so that the student's laboratory work is correlated with the lecture courses. Laboratories in the Department of Mechanical Engineering include the materials of engineering, manufacturing processes, thermal engineering, stress analysis, fluid mechanics, computers, controls, cryogenic engineering, and machine design. The Mechanical Engineering graduate has a broad latitude in choosing a career. Some major fields of interest are aeronautics and space, air conditioning and refrigeration, atomic energy, automation and instrumentation, energy conversion, manufacturing, plant engineering, power generation, and transportation. The successful completion of the undergraduate curriculum also prepares the student to enter a program of graduate study in mechanical engineering.

MECHANICAL ENGINEERING CURRICULUM

Freshman Year		Semester Hours
Freshman Engineering Curriculum	32	
Sophomore Year		
Economics 215.....	3	
Electrical Engineering 213	3	
Engineering Mechanics 211.....	3	
Mathematics 330, 350.....	6	
Mechanical Engineering 201, 251, 307	7	
Physics 201, 202.....	6	

Speech 377.....	3
Humanistic/Social Science Elective.....	3
	34
Junior Year	
Electrical Engineering 324	3
Engineering Mechanics 203, 311, 321	8
English 303.....	3
Mathematics 375.....	3
Mechanical Engineering 309, 315, 316, 317, 351, 353, 354,	12
Physics 380.....	2
Humanistic/Social Science Elective.....	3
	34
Senior Year	
Electrical Engineering 325	3
Engineering 401, 425	3
Mechanical Engineering 402, 404, 405, 410, 421, 422, 424, 430, 452, 453	20
Humanistic/ Social Science Electives	3
Technical Electives	6
	35
TOTAL SEMESTER HOURS	135

All electives must be approved by the Head of the Department of Mechanical Engineering.

MECHANICAL TECHNOLOGY

The two-year Associate of Science degree Curriculum in Mechanical Technology is presented in the Division of Admissions, Basic and Career Studies section of the catalog.

PETROLEUM ENGINEERING

The Petroleum Engineering Curriculum is designed to prepare its graduates for useful employment or graduate study in the petroleum industry, particularly in the areas concerned with drilling, production, and reservoir, by emphasizing the application of basic studies in mathematics, chemistry, physics, geology, and engineering sciences. The curriculum provides for a four-year course of study leading to the Bachelor of Science degree in Petroleum Engineering. Briefly, the petroleum engineer is concerned with the drilling and completion of oil and gas wells, the lifting and production of oil, gas deliverability, the development of future drilling and lifting operations, enhanced recovery of petroleum, movement of oil and gas through pipelines from the well to the refinery or market, the taking of data and estimating present value or future worth, and the removing of sand, water, or gas from the oil before it is moved through the pipelines.

The laboratories are designed to familiarize the student with the practical and theoretical problems encountered in the production of oil and gas and to promote communication of technical activities. Throughout the course of study, whenever practical, inspection trips are utilized to illustrate equipment and problems studied.

Although not a requirement, students are encouraged to find summer employment in the petroleum industry.

PETROLEUM ENGINEERING CURRICULUM

	Semester Hours
Freshman Year	
Freshman Engineering Curriculum	32
Sophomore Year	
Economics 215.....	3
Engineering 102	2
Mathematics 330, 350.....	6
Petroleum Engineering 200, 202, 305.....	9
Physics 201, 202.....	6
Geology 111, 112, 121.....	7
	33
Junior Year	
Chemical Engineering 321, 322	4
Chemistry 311	3
Electrical Engineering 213	3
Engineering Mechanics 211, 311, 203, 321	11
English 201 or 202.....	3
Petroleum Engineering 311, 404, 405, 406.....	11
	35
Senior Year	
English 303.....	3
Engineering 425	1
Geology 315.....	3
Humanistic/Social Elective.....	9
Petroleum Engineering 410, 414, 415, 424, 425, 450	13
Speech 377	3
Technical Elective.....	3
	35
TOTAL SEMESTER HOURS	135

ELECTIVES: Eighteen semester hours of electives must be approved by the Head of the Department of Petroleum Engineering. Fifteen must be in Humanities/Social courses selected from the fields of history, government, literature, sociology, philosophy, psychology, fine arts or advanced foreign languages; three must be selected from courses offered in the College of Engineering or in the Departments of Chemistry, Mathematics, or Physics; and cannot be a prerequisite for a course specifically required in the student's curriculum.

PETROLEUM ENGINEERING TECHNOLOGY

The Petroleum Engineering Technology curriculum, a two-year program leading to the Associate of Science Degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

College of Home Economics

OFFICERS OF INSTRUCTION

JEANNE M. GILLEY, Dean

NANCY M. TOLMAN, Director of Research and Graduate Studies

CURRICULA

Curricula offered by the College of Home Economics include Fashion Merchandising, Dietetics, Early Childhood Education: Nursery-Kindergarten, Home Economics Education, Consumer Services, General Home Economics and Food Service Supervision. Programs are planned to meet the highest professional standards. Tech's College of Home Economics is accredited by all professional accrediting bodies which evaluate home economics programs. The total program is accredited by the American Home Economics Association and the Coordinated Undergraduate Program in Dietetics is accredited by the American Dietetic Association. Additionally, Home Economics Teacher Education programs meet certification and accreditation standards.

Home Economics is an applied field of study built upon many disciplines, to promote the welfare and well-being of individuals, families and homes in an ever-changing society. The program includes involvement in real life situations and offers experiences beyond the North Louisiana area. Students may travel to Paris, Rome, London, New York and Dallas as a part of fashion study options. Interns work in metropolitan fashion centers in Dallas and other cities. Dietetics majors receive clinical instruction in varied health care and food service facilities in Shreveport and Ruston. The Tech Nursery School serves as an early childhood demonstration center for participation with young children. Educational and cultural experiences prepare graduates for varied professional roles in business, education, industry and government as well as for citizenship and personal development. Louisiana Tech University, the third university in the south and the first university in Louisiana to offer home economics, remains a leader in the field.

The College of Home Economics confers Bachelor of Arts, Bachelor of Science, and Master of Science degrees. The Bachelor of Arts degree is conferred on those completing options in consumer services, fashion merchandising, or general home economics. The Bachelor of Science degree is conferred on those who major in dietetics (Coordinated Undergraduate Program) or home economics education with emphasis on secondary teaching or early childhood education: nursery-kindergarten. Planned programs for minors and second teaching fields are available to provide for additional flexibility of employment.

The two-year associate degree program in food service offered in the College of Home Economics is outlined in this bulletin under the Division of Admissions, Basic and Career Studies.

ADMISSION

General admission requirements to the University apply to entering freshmen and transfer students. All entering freshmen enroll in the Division of Admissions, Basic and Career Studies and remain in this division until they have met the requirements for admission to the College of Home Economics. While in that

division, students interested in home economics should identify home economics as the major and should be advised by home economics faculty members.

UPPER DIVISION: Students are eligible to apply for upper division status when they have earned with a C average or above at least thirty semester hours credit including grades of C or above in the following: English (6 hours), Home Economics (6 hours), Speech (3 hours), and Health and Physical Education (2 hours). They must have completed the Home Economics orientation program.

Additionally, those majoring in the Home Economics Education options must complete Home Economics 127 (1 hour), Education 200 (3 hours with a grade of C or above), and science (3 hours) and have an overall grade point average of 2.2 on all hours earned. All applications must be turned in to the Home Economics Dean's office at least one week prior to the beginning of the quarter before enrolling in courses requiring upper division status.

Students enrolling in education or psychology courses numbered 200 or above and in home economics courses numbered 300 or above must have upper division status. Exception is Education 200.

SCHOLASTIC STANDARDS

Requirements for entrance to Louisiana Tech University are also requirements for the College of Home Economics. Students transferring into home economics from another institution should request that the Office of Admissions, Basic and Career Studies forward a copy of official transcripts to the College of Home Economics for evaluation. ACT scores are required of all students. A grade of C or better is considered acceptable for transfer of credit for required or equivalent courses in the home economics degree programs. Transfer students are required to complete a specific body of courses at Louisiana Tech University.

All students are advised to repeat home economics courses in which they have grades less than C before undertaking the next course of the subject matter series. For teacher certification, a grade of C or better is required in all home economics and professional education courses. An average of 2.2 is required for enrollment in student teaching at both the secondary and early childhood levels. An average of 2.5 is required for graduation from the home economics education options, and an acceptable score on the NTE is required for certification.

CATALOG REQUIREMENTS AND CHANGES

Home Economics policy, curriculum, and course changes are posted on the bulletin board near the dean's office (CTH 251). Posted notices officially update the University bulletins and are binding on students as if in the published documents. In addition, job and scholarship announcements, test dates, and planned course schedule changes are displayed in the hall. Students are advised to check the boards frequently.

Each student is responsible for meeting catalog requirements for graduation, including scheduling of infrequently offered courses and completing courses in sequence. Students should consult with their advisors during preregistration, registration, and when problems arise. Students with 60-70 hours credit should complete and secure advisor's approval of an up-to-date plan of study for their remaining quarters at Tech.

ELECTIVES AND THE MINOR IN GENERAL HOME ECONOMICS

Some courses in home economics are open to non-majors. Minors in fashion merchandising and early childhood education have been outlined. Other minors consisting of 21 hours in general home economics or a specialized area may be planned with approval of the Dean of Home Economics and the student's adviser. Suggested electives for men and women in other colleges include Home Economics 100, Marriage and Family Living; 103, Nutrition and Weight Control; 128, Clothing Selection; 201, Introduction to Child and Family Development; 202, Collegiate Cooking; 203, Nutrition; 219, Textiles; 223, Nutrition Education; 236, Household Equipment; 300, Parenting; 301, Early Childhood Development; 400, Contemporary Family Living; 401, Creative Activities for Early Childhood; 410, Multi-Cultural Family Studies; 416, Home Furnishings; 426, Housing; 431, Infant Development; 438, Historic Costume; 498, Fashion Merchandising, International, 246, Microcomputers in Home Management and 307, Family Interpersonal Relationships.

MINOR IN FASHION MERCHANDISING

A minimum of 21 hours to be selected from: Home Economics 128, 219, 228, 307, 308, 348, 406, 416, 419, 426, 428, 438, 488, 498.

MINOR IN EARLY CHILDHOOD

Required home economics courses include 201, 203 or 223, 301, 401, 411. Seven additional hours may be selected from Home Economics 100, 233, 300, 307, 311, 400, 406, 410, 421, 431 and 451. Minor does not meet certification requirements.

SCHOLARSHIPS AND LOANS

In addition to university and state supported scholarships awarded through the Division of Financial Aid, home economics majors may also apply separately for Home Economics Alumni Scholarships which range from \$200 to \$1500. Selections are based on high school academic records, ACT scores and participation in extracurricular activities. Consideration of applicants is not limited to those who have had high school home economics. Request applications from the College of Home Economics. Deadline for applying is March 1.

Clyde and Mildred Mobley and Kola Mobley Fouche Memorial Scholarship

This scholarship was established by Mr. and Mrs. Laurie S. Mobley to honor his sisters, outstanding Louisiana Tech Home Economics graduates. The amount of \$1500 is awarded to a freshman.

F. C. Haley

Mr. F. C. Haley, a 1931 Tech graduate and a prominent Louisiana educator, established a scholarship of \$1200. This award is designated for a first year home economics student.

Rhoda L. Chambless

The family of Mrs. Rhoda L. Chambless established this scholarship as a memorial. The amount of \$500 is awarded annually to a junior home economics major.

Selber Brothers Scholarship

To recognize excellence in the field of fashion merchandising and to recognize worthy students, Selber Brothers, a large department store in North Louisiana, established an award of \$1000. This scholarship is awarded to an outstanding fashion merchandising student at the sophomore level.

Laurie S. and Helen Mobley Home Economics Scholarship

A scholarship of \$1500 is awarded to a junior home economics major annually. Mr. and Mrs. Laurie S. Mobley established this scholarship.

BACHELOR OF ARTS DEGREES

The Bachelor of Arts Curriculum in Home Economics includes options in Consumer Services, Fashion Merchandising and General Home Economics.

CONSUMER SERVICES OPTION

This option provides preparation for students who desire employment with governmental and private consumer service agencies and/or businesses related to management and consumer education, household equipment, housing, and home economics extension. Minors in business and journalism combine well with the option.

Freshman Year	Semester Hour
Art 175.....	2
English 101, 102.....	6
Health and Physical Education.....	2
History, American.....	3
Home Economics 100, 112, 118, 127.....	9
Mathematics 114.....	3
Psychology.....	3
Speech 110 or 377.....	3

31

Sophomore Year	
Economics 215.....	3
English 201, 202.....	6
Home Economics 201, 203, 212, 228	
219, 236, 256.....	20
Social Science Elective.....	3

32

Junior Year	
Accounting 203.....	2
Communication Elective.....	3
Electives.....	8
Home Economics 307, 327.....	5
Home Economics Electives.....	6
Marketing 300.....	3
Social Science Elective.....	3
Speech 340, 360, or 361.....	3

33

Senior Year	
Electives.....	12
Home Economics 412, 416, 426, 436,	
456, 457.....	15
Science.....	6

33

TOTAL SEMESTER HOURS..... 129

FASHION MERCHANDISING OPTION

Students are prepared for careers in fashion production, retailing, and communications. Minors in business, marketing, art, and journalism are possible. Home Economics courses including 218, 498C, 498I, 428, and 438 are also recommended electives. Students electing Home Economics 498I are required to pay a supervision fee.

Freshman Year	Semester Hours
Art 175.....	2
English 101, 102.....	6
Health and Physical Education Activities.....	2
Home Economics 100, 118, 127, 128, 158.....	10
Mathematics 114.....	3
Science.....	3
Social Science Elective.....	3
Speech 110 or 377.....	3
	32

Sophomore Year	
Accounting 203.....	2
Economics 215.....	3
English 201, 202.....	6
History, American.....	3
Home Economics 201, 203, 219, 228, 256.....	14
Psychology.....	3
	31

Junior Year	
Electives.....	5
Foreign Language.....	6
Home Economics 307, 308, 348 348, 388.....	14
Marketing 235, 300, 307.....	9
Senior Year	
Electives.....	7
Home Economics 416, 419, 438 456, 457, 488.....	15
Home Economics Electives.....	8
Management 470 or Advance Marketing.....	3
	34

TOTAL SEMESTER HOURS.....130

GENERAL HOME ECONOMICS OPTION

This option provides opportunity for a broad based education which may emphasize several areas within home economics or a combination of home economics and a secondary field of interest.

Electives should be carefully planned and selected with the advisor's approval.

Freshman Year	Semester Hours
Art 175.....	2
Elective.....	3
English 101, 102.....	6
Health & Physical Education Activities.....	2
Home Economics 100, 112, 118, 127.....	9
Home Economics 128 or 228.....	2
Mathematics 114.....	3
Speech 110.....	3
	30

Sophomore Year	
Economics 215.....	3
Elective.....	3
English 201, 202.....	6
History, American.....	3
Home Economics 201, 203, 219, 236, 256.....	15
Psychology.....	3
	33

Junior Year	
Communications Electives.....	6
Electives.....	10

Health & Physical Education.....	2
Home Economics 212, 307.....	6
Home Economics Electives.....	9
	33

Senior Year	
Electives.....	8
Home Economics 400, 426, 436, 456, 457.....	13
Social Science Electives.....	6
Science.....	6
	33

TOTAL SEMESTER HOURS.....129

BACHELOR OF SCIENCE DEGREES

The Bachelor of Science degrees include Home Economics Education options for secondary teaching and Early Childhood Education: Nursery-Kindergarten and Dietetics.

HOME ECONOMICS EDUCATION

The Home Economics Education Curriculum has two options: Teacher Education and Early Childhood Education: Nursery-Kindergarten. The Teacher Education Option prepares a student to teach vocational home economics in Louisiana under the provisions of the federal Education Amendments of 1976 as outlined in the State plan. The Early Childhood Education Option prepares the student to teach nursery school and kindergarten and for careers with young children in child care centers and related programs.

TEACHER EDUCATION OPTION (Secondary)

Freshman Year	Semester Hours
Art 175.....	2
Electives.....	2
English 101, 102.....	6
Health & Physical Education Activity.....	2
Home Economics 100, 112, 118, 127.....	9
History 201 or 202.....	3
Mathematics 107, 108, 109.....	6
Speech 110.....	3
	33

Sophomore Year	
Education 200.....	3
English 201, 202.....	6
Home Economics 201, 203, 218, 219 228, 236, 256.....	18
Psychology 204, 206.....	6
Science.....	3
	36

Junior Year	
Economics 215 or Sociology 316.....	3
Education 390.....	1
Electives.....	5
Health & Physical Education.....	2
Home Economics 212, 307, 327, 338.....	10
Political Science 201.....	3
Science.....	3
Science, Biological.....	3
Science, Physical.....	3
	33

Senior Year	
Education 402, 403, 404, 416.....	17

Home Economics 405, 412, 426, 436, 456, 457	16
	33
TOTAL SEMESTER HOURS	135

EARLY CHILDHOOD EDUCATION: NURSERY- KINDERGARTEN OPTION

Freshman Year	Semester Hours
Art 101.....	2
English 101, 102.....	6
Health & Physical Education Activity.....	2
Health & Physical Education 150.....	2
Home Economics 100, 112, 127, 128 or 228.....	9
Music	2
Science, Biological	3
Social Science Elective.....	3
Speech 110.....	3
	32
Sophomore Year	
Education 200.....	3
English 201, 202.....	6
History 201, or 201.....	3
Home Economics 201, 203, 233, 356.....	10
Home Economics 301	3
Library Science 201 or 450	3
Psychology 204.....	3
Science, Physical	3
	34
Junior Year	
Education 323, 324.....	6
Electives.....	5
Home Economics 300, 307	6
Home Economics 311, 401	6
Mathematics 303, 304.....	6
Science	6
	35
Senior Year	
Education 441, 420.....	6
Electives.....	3
History 360 or Geography 310	3
Home Economics 400, 426, 431, 456, 457.....	13
Home Economics 411, 421	9
	34
TOTAL SEMESTER HOURS	135

COORDINATED UNDERGRADUATE PROGRAM (CUP) IN GENERAL DIETETICS

The dietetic curriculum is a coordinated undergraduate program which is accredited by The American Dietetic Association. The program is designed to prepare fully qualified dietitians within a four year period rather than the traditional five years required in internship and traineeship programs. Course work and field experience are integrated at affiliations in Ruston and Shreveport. Upon successful completion of the program, a student is awarded the B.S. degree, meets clinical and

academic requirements for membership in the American Dietetic Association and is eligible to take the examination for qualification as a registered dietitian (R. D.). Dietetic graduates are prepared to assume both administrative and therapeutic positions in public health, hospitals, and other health care institutions as well as management positions in food service systems. Careers are also available in research and education as they relate to nutrition and management.

The field experience phase of CUP begins at the junior level. Applications are available from the program director. Entrants into the program at this point are required to have completed a specific body of course work and to have an overall GPA of 2.50. Summer work experience in a health care facility is strongly recommended during the sophomore or junior years. The senior year in CUP will be spent in Shreveport, where most of the field experience facilities are located. Students are required to pay a Professional Program fee during the senior year.

COORDINATED UNDERGRADUATE PROGRAM IN GENERAL DIETETICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 130, 131, 132	10
English 101, 102.....	6
Home Economics 112, 127, 203, 212.....	10
Mathematics 107, 108.....	4
Speech 377 or 110.....	3
	33
Sophomore Year	
Bacteriology 210.....	3
English 201, 202.....	6
Economics 215.....	3
Home Economics 213, 243	6
Home Economics 207	1
Elective	7
Psychology 204.....	3
Sociology 205 or 201	3
Zoology 225.....	3
	35
Junior Year	
Education 390.....	1
Elective	3
Home Economics 222, 352, 362, 372, 382, 405, 412, 404, 414, 423, 433, 483, 493	27
Management 311 or 470	3
	34
Senior Year	
Home Economics 452, 453, 462, 463, 473, 482.....	31
	31
TOTAL SEMESTER HOURS	133

THE GRADUATE PROGRAM

Students may earn a Master of Science Degree in Home Economics.

College of Life Sciences

OFFICERS OF INSTRUCTION

HAL B. BARKER, Dean
JOHN A. WRIGHT, Associate Dean; Head, Dept. of Agronomy Horticulture
JOHN L. MURAD, Director, Division of Research
HAROLD D. HEDRICK, Director, Graduate Studies
LARRY D. ALLEN, Head, Department of Agricultural Education Agriculture-Business
C. REID MCLELLAN, JR., Head, Animal Industry
DALLAS D. LUTES, Head, Department of Botany and Bacteriology
J. LAMAR TEATE, Director, School of Forestry
VIRGINIA R. PENNINGTON, Head, Division of Nursing
MARGARET H. PEASLEE, Head, Department of Zoology

AIM

The aim of the College of Life Sciences is to give the student a scientific knowledge of the surrounding world, stressing the all-important role of animals and plants in the economy of nature, and to broaden and deepen the student's understanding and appreciation of the environment, thus offering preparation for a professional career and for a happier, more complete, satisfying, and productive life.

ORGANIZATION AND CURRICULA

The College of Life Sciences is organized into the Departments of Agronomy-Horticulture, Animal Industry, Botany-Bacteriology, Agricultural Education and Agriculture-Business, Zoology, the School of Forestry, the Division of Nursing, and the Division of Research. It offers 10 four-year curricula leading to the degree of Bachelor of Science, a two-year Pre-Nursing Curriculum (Interinstitutional with Northwestern State University) leading to a Bachelor of Science degree, a two-year nursing curriculum leading to an Associate of Science degree, a Basic-Life Sciences one-year program and a two-year program in Agricultural Technology leading to an Associate of Science Degree. The curricula offered are:

AGRICULTURE-BUSINESS
AGRICULTURAL EDUCATION
AGRICULTURAL TECHNOLOGY (2 year program)
ANIMAL SCIENCE (Including Pre-Veterinary Medicine)
AGRONOMY
BOTANY
FORESTRY (Options: Forestry-General, Forestry-Business, Forestry-Mechanization, Forestry-Recreation, Forestry-Wildlife, Wood Utilization)
HORTICULTURE
MICROBIOLOGY (BACTERIOLOGY)
NURSING (2 options)
WILDLIFE CONSERVATION (Biology)
ZOOLOGY (Including Pre-Medical and Pre-Dental Options)

The curricula are designed to furnish a well-balanced educational program based on the cultural needs, the practical interests, and the citizenship responsibilities of young men and women. They offer essential instruction in the sciences; namely, botany, bacteriology, chemistry, zoology, physics and business, and the humanities and social studies, as well as a comprehensive education in one or more of the special fields of the College.

Students entering the Professional Officer's Course in Air Force ROTC may use credits earned in the POC (300-400

level) to satisfy general elective requirements. Thus, with proper planning and pre-arrangement with the head of the department, all Air Force aerospace studies courses may be used in satisfying degree requirements.

The Master of Science degree in Life Sciences is offered with (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's-plus-30 may also be earned in Life Sciences.

INTERNSHIP

Students majoring in animal science, agriculture-business, agronomy, dairying, horticulture, wildlife management, and agriculture education may elect to participate in an internship program during one term near the completion of their regular course work. In curricula employing this approach, students will register for 9 semester hours of course work, and be placed on cooperating farms or with business firms where they will receive first-hand practical experiences. In addition to credit received the students usually become employees of the cooperating agency and are paid for their services.

Internships have as their major purpose the development of professional competency, by imparting general and specific skills, basic and applied knowledge and by assisting the student in the transition from school to job.

More and more students without farm backgrounds are enrolling in agriculture; the internship is a means of providing certain practical experiences to such students. Advances are being made very rapidly in all phases of scientific and business agriculture, thus making it difficult to maintain up-to-date laboratory facilities at reasonable costs on college campuses; the internship program can adequately supplement where the on-campus laboratory ceases to be adequate.

Experience in a real-work environment enables the prospective student employee to apply classroom theory on the job under the supervision of a competent university faculty member and an experienced representative of the cooperating agency or business.

Agricultural Technology, a two-year program requires 27 semester hours of credit for three terms of internship.

All internship programs require a permission form signed by the intern's parent, spouse or guardian.

SCHOLARSHIPS

Scholarships are available in the College of Life Sciences; some are general and offered to any student in the College of Life Sciences, others are departmental, including several WY-LY-ALUMNI FOUNDATION AWARDS. A student wishing to make application for a departmental scholarship should contact the department head in the field of interest.

THE BLOCK AND BRIDLE CLUB-ALUMNI SCHOLARSHIP of \$300 is awarded annually to one or more beginning animal science freshmen.

The C. G. HOBGOOD MEMORIAL SCHOLARSHIP of \$150 is awarded annually to an advanced student in the Department of Agronomy-Horticulture.

THE M. HAYNE FOLK, JR., MEMORIAL SCHOLARSHIP of \$150 is awarded annually to a sophomore, within the College of Life Sciences, having high academic achievement and financial need.

THE MARY JARRELL NURSING SCHOLARSHIP is awarded annually to six selected students majoring in A.D. Nursing.

ZOOLOGY PREMEDICAL/PREDENTAL FUND Annual awards to one or more entering freshmen students. Generally amount to \$300-\$600 for the freshman year. To be eligible, a student must major in zoology and have medicine or dentistry as a career goal and maintain at least a 3.0 average during the freshman year.

OUTSTANDING FRESHMAN PREMEDICAL/PREDENTAL ZOOLOGY STUDENT Awards of \$100-\$300 to one or more outstanding Zoology majors at the end of their freshman year (completion of 30 semester hours). Eligible students are Zoology majors with career goals in medicine or dentistry.

MARY VIRGINIA CAGE MEMORIAL SCHOLARSHIP Annual award from funds contributed by the alumni, family and friends of Mary Virginia Cage to an outstanding graduating senior premedical student who is a major in the Department of Zoology.

SCOTT M. WEATHERSBY ENDOWMENT AWARD An annual award from funds generated by the Scott M. Weathersby Endowment. Presented to the Outstanding Graduating Senior Zoology Student.

The School of Forestry offers to certain forestry students the scholarships listed below:

THE LOUISIANA TECH FORESTRY ALUMNI ASSOCIATION. An annual award of \$600 to one or more selected forestry students.

SCHOOL OF FORESTRY FRESHMEN AWARDS. An annual award of \$300 one or more beginning forestry freshmen.

RICHARD M. SISK TRUST FUND. An annual award of \$300 to one or more beginning forestry freshmen.

THE LOUISIANA FORESTRY FOUNDATION. Two annual awards of \$1,000 and \$750 to selected forestry students.

SEEDLING AND SAPLING CLUB OF THE LOUISIANA FORESTRY ASSOCIATION. An annual award of \$75-\$100 to an outstanding forestry senior.

WILLAMETTE INDUSTRIES. An annual award of \$825 to a selected forestry student.

THE WALTER KELLOGG FORESTRY SCHOLARSHIP. An annual award of \$500 each to two or more selected forestry students from Ouachita Parish or adjoining area.

THE C. A. REED FORESTRY SCHOLARSHIP. An annual award of \$500 each to two or more selected forestry students from Lincoln-Union parishes or adjoining area.

FACILITIES

The main University campus maintains adequate classrooms, laboratories, a library, and equipment for effective instruction in the basic sciences and in the other cultural subjects which are required in the various curricula in the College of Life Sciences, whereas the agriculture campus, consisting of approximately 825 acres, provides the facilities which are devoted specifically to instruction, research and demonstrational work in the agricultural sciences. Botany and Zoology are domiciled on the main campus in Carson-Taylor Hall.

Located on the agriculture campus are Reese Hall, which houses offices, classrooms and laboratories; a Jersey-Holstein herd and modern dairy facilities which provide milk for the campus; a Dairy Processing Plant, which is equipped for pasteurizing and packaging milk, making cheeses, ice cream, butter and other dairy products. A modern Meats Laboratory provides facilities for training students in meat processing and merchandizing.

Also located on the agriculture campus are greenhouses for the departments of Agronomy-Horticulture and Forestry; a sawmill, a dry kiln, wood utilization laboratories, a wood working shop, a weather station, farm machinery buildings, barns for dairy and meat animals, the farm supervisor's home, fields, forests, nurseries, vegetable and flower gardens, a 50-acre arboretum, pastures and ponds.

DIVISION OF LIFE SCIENCES RESEARCH

The Division of Life Sciences Research is an integral part of the educational processes of this university. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality.

The Division is the administrative office for the coordination of all phases of research conducted by various units within the College of Life Sciences. General policies and procedures governing the administration of the Division are formulated and governed by the Research Committee. The committee is chaired by the research director and is composed of an elected representative from each department within the College of Life Sciences and the Dean of the College.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contribution by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House projects are strongly encouraged through brief research proposals submitted to the Research Committee for consideration and funding.

BASIC LIFE SCIENCES DIVISION

The Basic Life Sciences Division is designed for the students who are interested in some area of Life Sciences but who do not know what department to choose or what curriculum to pursue. The Associate Dean will serve as advisor to these students helping them toward the selection of a major.

BASIC LIFE SCIENCES ONE-YEAR PROGRAM

Freshman Year	Semester Hours
English 101, 102.....	6
Mathematics (111 & 112) or (107, 108, 109)	6
Science - Botany 101 and 104 and Zoology 111, 112	8
Life Sciences 101	1
Professional or Technical Courses	8
Free Elective.....	3
TOTAL SEMESTER HOURS	32

AGRICULTURAL TECHNOLOGY

The Agricultural Technology Curriculum, a two-year program, leading to the Associate of Science Degree is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

DEPARTMENT OF AGRICULTURAL EDUCATION & AGRICULTURE BUSINESS

The curriculum in agricultural education is organized to prepare students who desire to teach agriculture in secondary schools.

The agriculture teacher training section is administered by the College of Life Sciences in cooperation with the College of

Education. Students in agricultural education must meet the same general requirements outlined for those seeking admission to teacher education in the College of Education's upper division.

Service courses in technical agriculture are provided to give the student thorough training in the areas of plant science, animal science, soils, farm management, and farm mechanics.

The curriculum in agricultural education leading to a Bachelor of Science degree requires 138 semester hours, eight of which are earned in selected high schools in the area as apprentice teachers.

Agricultural education graduates have employment opportunities in many other fields such as the cooperative extension service, banking, farm management, federal government, research, sales and service for agricultural businesses, and higher education.

The department sponsors an active collegiate chapter of Future Farmers of America to provide practical experience in this important leadership activity.

AGRICULTURE-BUSINESS

The general Agriculture-Business Curriculum is designed to train students in the basic agricultural sciences, business, and the operation of a farm. Students are qualified for employment in the agricultural-related businesses, and the many specialized jobs in industry requiring fundamental knowledge of these two fields.

AGRICULTURAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Agriculture 100, 101.....	4
Animal Science 101.....	3
Botany 101, 104.....	4
Education 101.....	1
English 101, 102.....	6
Health and Physical Education.....	3
Math 107, 108, 109.....	6
Speech 110.....	3
Zoology 105.....	3
Agricultural Engineering 209.....	1
	<hr/> 34
Sophomore Year	
Agricultural Engineering 211 or 215.....	2
Bacteriology 210.....	3
Chemistry 130, 131, 132.....	10
Animal Science 102, 201, or Animal Science Elective.....	6
Agricultural Education.....	3
Education 200.....	3
English 201, 202.....	6
Economics 215.....	3
	<hr/> 36
Junior Year	
Agricultural Education 450.....	3
Agronomy 200, 202, 211.....	7
Economics 320.....	3
Education 403.....	3
Forestry 213 or Plant Science elective.....	3
Health and Physical Education.....	1
History 201, 202.....	6
Horticulture 220 or Horticulture elective.....	3
Education 380.....	3

Psychology 206.....	3
	<hr/> 35
Senior Year	
Agricultural Education 301.....	3
Agricultural Engineering 320 or Engineering elective.....	3
Agriculture 411.....	1
Animal Science 301.....	3
Animal Science electives.....	5
Economics 402 or 430.....	3
Education 301, 402, 404.....	8
Education 416.....	8
Veterinary Science 301 or 401.....	3
	<hr/> 32
TOTAL SEMESTER HOURS	137

AGRICULTURE-BUSINESS CURRICULUM

Freshman Year	Semester Hours
Agricultural Engineering 211.....	2
Agriculture 100, 101.....	4
Animal Science 100, 101.....	3
Botany 101, 104.....	4
Chemistry 130, 131, 132.....	10
English 101, 102.....	6
Life Sciences 101.....	1
Mathematics 107, 108, 109.....	6
	<hr/> 36
Sophomore Year	
Agricultural Engineering 110, 206, 209, 210, or 215.....	4
Accounting 203, 204.....	4
Agronomy 200, 202, 211.....	7
Bacteriology 210.....	3
Economics 215.....	3
Management 201.....	3
Psychology 102.....	3
Speech 110 or 377.....	3
Zoology 105.....	3
	<hr/> 34
Junior Year	
Accounting 210.....	3
Agricultural Engineering 320.....	3
Agronomy 307.....	3
Animal Science 301.....	3
Business Law 355, 356 or 440.....	6
Economics 320.....	3
English 303.....	3
Forestry 213 or 214.....	3
Life Sciences 300.....	3
Marketing 300.....	3
	<hr/> 32-33
Senior Year	
Agriculture 411.....	1
Agronomy 408, 421, 422, 423.....	12
Animal Science 410.....	4
Economics 402, 430.....	6
Finance 318.....	3
Life Sciences 420.....	3
Elective.....	3
	<hr/> 32
TOTAL SEMESTER HOURS	134

DEPARTMENT OF AGRONOMY-HORTICULTURE

The Department of Agronomy-Horticulture offers four years of university training in crops, soils, fruits, flowers, vegetables, and landscape and floral design.

Agronomy

The courses offered in the field of agronomy are divided between crops and soils, and provide the student with a knowledge of production and utilization of crops and a knowledge of the fundamentals of soils and their uses.

The Department sponsors the Agronomy Club, which is a student section of the American Society of Agronomy. The club sponsors soil and crop judging teams which promote closer and professional relationships among students and faculty.

Horticulture

The Horticulture Curriculum offers students both scientific and practical training in the production, utilization, and marketing of fruits, vegetables, flowers and ornamental plants; and emphasizes floral and landscape design.

AGRONOMY CURRICULUM

Freshman Year	Semester Hours
Agriculture 100, 101.....	4
Animal Science 101.....	3
Botany 101, 104.....	4
Chemistry 130, 131, 132.....	10
English 101, 102.....	6
Life Sciences 101.....	1
Mathematics 111, 112.....	6
	34
Sophomore Year	
Agriculture Engineering 209, 215, 303, or 320.....	2-3
Agronomy 200, 202, 211.....	7
Bacteriology 210.....	3
Botany 205 or 223 and 405.....	6
Economics 215.....	3
Physics 209.....	3
Psychology 102.....	3
Zoology 111, 112.....	4
Elective.....	1 or 2
	32-33
Junior Year	
Agronomy 307, 312, 315, 330.....	13
Bacteriology 315.....	3
Botany 330.....	3
English 303.....	3
Life Sciences 300.....	3
Speech 110 or 377.....	3
Electives.....	4-5
	33
Senior Year	
Agriculture 411.....	1
Agronomy 405, 408, 410, 421, 409.....	16
Economics 402.....	3
Electives.....	3
Life Sciences 420.....	3
Zoology 414.....	3
	32
TOTAL SEMESTER HOURS	130

Students in Agronomy may choose an emphasis either in Crops or Soils. Crops students will follow the curriculum as outlined while soils students will follow the curriculum outline with the following exceptions:

DROP: Chemistry 130, 131, 132, Zoology, 111, 112, and 414; 5 hours electives

ADD: Chemistry 101, 102, 103, 104, 250, 251, 252, 253, 254, Geology 111, Physics 210

Total Semester Hours..... 130

Physics 210

Total Semester Hours..... 130

Integrated Pest Management students will follow the Agronomy Curriculum with the following exceptions:

DROP: Economics 215, 402; Psychology 102; Elective-3.

ADD: Botany 350, Agronomy 422, 423; Life Sciences 456 and Agriculture 441, 442 and 443, Internship.

Total Semester Hours..... 140

HORTICULTURE CURRICULUM

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Agriculture 100, 101.....	4
Botany 101, 104.....	4
English 101, 102.....	6
Horticulture 100, 103.....	4
Life Sciences 101.....	1
Mathematics 107, 108, 109.....	6
Speech 110 or 377.....	3
	29
Sophomore Year	
Agricultural Engineering 215.....	2
Agronomy 200, 202.....	4
Bacteriology 210.....	3
Botany 223.....	3
Chemistry 130, 131, 132.....	10
Horticulture 200, 201, 205, 210, 215, 220.....	14
	36
Junior Year	
Agronomy 312, 315.....	7
Botany 330.....	3
Economics 215.....	3
English 303 or 336.....	3
History 201 or 202.....	3
Horticulture 300, 302, 307, 315.....	12
Life Sciences 300.....	3
	34
Senior Year	
Agriculture 411.....	1
Agronomy 421 or 409, 422.....	6
Botany 405.....	3
Horticulture 400, 403, 440.....	7
Life Sciences 420.....	3
Zoology 414.....	3
Electives.....	8
	31
TOTAL SEMESTER HOURS	130

On the advice and with the approval of the Department Head, a student in Horticulture may choose an emphasis in Floral or Landscape Design. A student concentrating in Floral Design will follow the basic Horticulture curriculum with the following exceptions:

DROP: Agronomy 312, 315, 421; Bacteriology 210; Botany 405; Chemistry 130, 131, 132; Life Sciences 300, 420; Mathematics 107, 108, 109

ADD: Accounting 203; Art 115, 116, 125, 126, 215, 240; Business Law 355; Home Economics 438; Life Sciences 425; Management 201; Marketing 300, 307, 235 Electives, 2 hours

A student concentrating in Landscape Design will follow the basic Horticulture curriculum with the following exceptions:

DROP: Agronomy 315; Bacteriology 210; Botany 405; Chemistry 130, 131, 132; Life Sciences 300, 420; Mathematics 107, 108, 109; Electives

ADD: Accounting 203; Architecture 110, 111, 120, 121, 122, 130, 131, 132; Business Law 355; Civil Engineering 400; Management 201; Marketing 300, 307, 235

DEPARTMENT OF ANIMAL INDUSTRY

The Department of Animal Industry is comprised of the fields of animal, dairy, poultry, equine and veterinary science.

The main objective of the Department is to give instruction and practical experience in judging, breeding, feeding, and management of different kinds of livestock and related industries. Through course selection the student may prepare for general livestock farming, management, business or science or elect the pre-veterinary courses for specialization. Directed elective selection permits special training for work with feed companies, milk, egg or poultry operations, food processing industries, managerial or marketing groups, supply and equipment cooperatives, agriculture extension service, agriculture communication, public relations and other organizations associated with agriculture. Graduates are adequately prepared to enter graduate work in their chosen field of specialization.

Opportunities are afforded majors in animal science to obtain practical experience in livestock, dairy herd and equine operation and management through the University herds of registered beef cattle, registered dairy cattle, and equine unit. In addition the department strongly encourages participation in the agriculture internship program.

A modern, automated milking barn; calf barn; beef cattle barns; poultry houses; feed lots; crop lands and pastures are utilized for instruction and student training.

A modern meats laboratory for the study of meat and its cutting, curing, preservation, storage and utilization; and the Dairy Processing Plant equipped for processing fluid milk and manufacturing various dairy products such as butter, cheese and ice cream provide students ample opportunities for acquiring scientific and practical education in different aspects of processing meat animal and dairy products.

The Tech Horse Center offers an opportunity for students to become experienced in stallion management, brood mare care and breeding, foal raising and yearling training and marketing.

The Department of Animal Industry has a chapter of the National Buck and Bridle Club and a Pre-Veterinary organization which provides extracurricular social and educational activities for students pursuing animal science as a profession.

ANIMAL SCIENCE CURRICULUM

Freshman Year	Semester Hours
Agriculture 100, 101 or Approved elective.....	4
Animal Science 111, 112.....	6
Botany 101, 104.....	4
English 101, 102.....	6
Life Sciences 101.....	1
Mathematics 107, 108, 109 or 111, 112.....	6
Zoology 105 or 111, 112.....	4

Electives.....	2
	33

Sophomore Year	
Accounting 203.....	2
Agronomy 211.....	3
Animal Science Electives.....	3
Business Elective.....	3
Bacteriology 210 or Dairying 301.....	3
Chemistry 130, 131, 132.....	10
Speech 110 or 377.....	3
Humanities or Social Science Elective.....	6
	36

Junior Year	
Agricultural Engineering Elective.....	2
Agronomy 200, 202.....	4
Animal Science 301, 307, 315, 318.....	12
Animal Science Directed Electives.....	9
Bacteriology 210 or Dairying 301.....	3
English 303.....	3
Life Sciences 300.....	3
Veterinary Science 301.....	3
	36

Senior Year	
Agriculture 411.....	1
Agriculture Marketing Elective.....	3
Animal Science 401, 402, 405.....	7
Animal Science Directed Electives.....	9
Life Sciences 420.....	3
Veterinary Science 401.....	3
Electives.....	4
	30

TOTAL SEMESTER HOURS 135

Directed and free electives, chosen with career objectives in mind and the counsel and approval of the advisor, allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; those interested in business would select courses in economics, finance and marketing; those interested in dairy manufacturing would select courses in bacteriology and dairying; those interested in research would select chemistry, zoology, or statistics; those interested in equine would select additional animal science courses specializing in horses and/or race-track management.

PRE-VETERINARY MEDICINE

Students having a high GPA and having completed the pre-veterinary course requirements may wish to apply to Veterinary School after completing their Junior year. These students may become candidates for the Bachelor of Science degree in Animal Science after completing the first year of professional work at a Veterinary School. The student must arrange for the transfer of credit and follow the accepted procedure applicable for graduation at Louisiana Tech.

This course listing is provided to guide the student in meeting the admission requirements of the Veterinary School at Louisiana State University in Baton Rouge. Only residents of Louisiana and Arkansas are eligible to apply for admission at L.S.U. Residence status is determined by L.S.U. and residence status at Tech has no bearings on such determination. In addition, completion of the specific subject matter requirements listed and attainment of a given grade point average (2.5) in these courses are minimum requirements for entrance. The specific course listing will generally qualify residents of other states for

application to Schools of Veterinary Medicine which accept residents of that particular state.

Each year the number of applicants is much greater than the number of available spaces. As a result, meeting or surpassing the minimum requirement does not assure acceptance by the Professional program and each student should, early in college, elect a possible alternate career choice.

Application for veterinary school is made in January for admission in August of that year. Although it is possible to complete the pre-veterinary requirements in two years, it is strongly recommended that each pre-veterinary student pursue at least a three-year program.

SUBJECT MATTER REQUIREMENTS FOR ADMISSION TO VETERINARY SCHOOL

	Semester Hours
Animal Science 301.....	3
Botany 101, 104.....	4
Chemistry 120, 121, 122, 123, 124 or 101, 102, 103, 104.....	8
Chemistry 250, 251, 252, 253, 254.....	8
Economics 215.....	3
English 101, 102, 303.....	9
Life Sciences 101, 300.....	6
Mathematics 111, 112.....	6
Physics 209, 210, 261, 262.....	8
Speech 377.....	3
Zoology 111, 112.....	4
Electives.....	9

TOTAL SEMESTER HOURS69

Elective hours must be chosen from Animal Science 111, 112, 201, 211; History 201 or 202; Political Science 201; Sociology 201, 330, 340.

All Louisiana Tech students are strongly encouraged to take Animal Science 100 and 101 as one of their electives.

DEPARTMENT OF BOTANY AND BACTERIOLOGY

The Department of Botany and Bacteriology offers work leading to the Bachelor of Science degree in Botany, in Microbiology, and in Wildlife Conservation. Also, the Department offers graduate courses leading to the Master of Science degree in Life Sciences in the areas of Botany and Microbiology.

In order to broaden the education programs in the Department, the curricula provide for a substantial amount of required and elective courses outside the major fields of study.

Courses are offered in the Department, not only for majors in botany, in microbiology, and in wildlife conservation and management and minors in botany and in bacteriology, but in fulfillment of the requirements of the curricula in other departments. As botany is the basic science for students entering the applied botanical fields of agronomy, bacteriology, forestry, horticulture, plant breeding, plant pathology, forest pathology, and wildlife conservation, the Department emphasizes the phases of plant science which are fundamental for these applied fields. The Department, recognizing the need for natural science in the elementary and secondary schools, has worked with the College of Education to provide work for prospective teachers that will enhance the presentation of basic science concepts in the lower educational programs.

Botany

Each student who plans to have a major in botany is required to take 35 semester hours of botany, at least 16 hours of which must be in advanced hours, i.e., courses bearing numbers

above 300. Before the end of the sophomore year, with the approval of the head of the Department, a minor program of study may be chosen.

For the minor program of study, the student majoring in botany must take 21 semester hours of course work in some related field, such as agronomy, bacteriology, chemistry, forestry, horticulture, or zoology.

Students doing work toward a major in other departments and electing botany or bacteriology as a minor are required to take 21 semester hours in botany or bacteriology, the courses to be chosen in consultation with the head of the Department of Botany and Bacteriology.

The opportunities for graduates in botany are too varied to permit a complete enumeration. In general, graduates are qualified for the following types of work: further study in graduate school; teaching and research in colleges; and positions in experiment stations, in federal agencies—notably the United States Bureau of Plant Industry, the National Park Service, the United States Forest Service, and the United States Bureau of Plant Quarantine—and in commercial greenhouses, nurseries, and florist shops.

Microbiology (Bacteriology)

The program in microbiology is designed for students who are interested in the study of microorganisms. It is arranged both for those students who plan to secure employment after receiving the Bachelor of Science degree and for those who plan to pursue graduate work in microbiology, which is essential for preferred employment in the field.

The curriculum offers, in addition to the general training in microbiology, fundamental training in chemistry, physics, and mathematics, which is necessary for effective work in modern microbiology.

Graduates of this curriculum are eligible to enter graduate schools for advanced training in microbiology and to specialize in one or more of its various branches such as: General Bacteriology, including physiology, instrumentation, and antibiotics; Sanitary Bacteriology, including antiseptics and disinfectants, food storage, and water and sewage; Agricultural Bacteriology, including food, dairy, and soil bacteriology; and Pathogenic Bacteriology, including mycology, immunology, serology, and virology.

Graduates are qualified for positions in federal, state, and municipal laboratories; positions in the fields of medical and public health microbiology; bacteriology work in sanitary, food, dairy, soil, and industrial technology; food preservation work; and positions in experimental stations; research institutions, colleges, or universities.

Wildlife Conservation

The Wildlife Conservation curriculum is designed both for those students who desire a scientific knowledge of the conservation and management of wildlife and for those who expect to make a living in the wildlife field. It is planned further to provide a knowledge of the importance to man of natural resources and to add to the understanding of some of the relationships of those resources to one another. It is designed to train conservation workers as managers, naturalists, and researchers.

BOTANY CURRICULUM

	Semester Hours
Freshman Year	
Bacteriology 212, 213.....	4
Botany 101, 104.....	4
English 101, 102, 202.....	9
Mathematics 111, 112.....	6
Life Sciences 101.....	1
Social Science Elective.....	3

Zoology 111, 112	4
.....	31
Sophomore Year	
Botany 205, 221, 222, 223	12
Chemistry 130, 131, 132	8
English 303	3
Physics 205, 206	6
Social Science Elective	3
.....	32
Junior Year	
Botany 330, 350, 351	11
Chemistry 250, 251, 252, 253, 254	8
Foreign Language	6
Electives	9
.....	34
Senior Year	
Bacteriology Elective	3
Botany 320, 405, 415, 416	8
Life Sciences 300, 420	6
Electives	16
.....	33
TOTAL SEMESTER HOURS	130

MICROBIOLOGY (BACTERIOLOGY) CURRICULUM

Freshman Year	Semester Hours
Bacteriology 212, 213	4
Botany 101, 104	4
Chemistry 130, 131, 132	8
English 101, 102	6
Mathematics 111, 112	6
Life Sciences 101	1
Zoology 111, 112	4
.....	33
Sophomore Year	
Bacteriology Elective	4
Bacteriology 306	3
Botany 350	4
Chemistry 250, 251, 252, 253, 254	8
Physics 209, 210, 261, 262	8
Social Science Elective	3
Elective	3
.....	33
Junior Year	
Bacteriology 330	4
Bacteriology Electives	7
Chemistry Elective	4
English 202, 303	6
Life Sciences 300	3
Social Science Elective	3
Electives	5
.....	32
Senior Year	
Bacteriology 406, 415, 416	6
Bacteriology Elective	4
Foreign Language	6
Life Sciences 420	3
Zoology 401	3

Electives	10
.....	32
TOTAL SEMESTER HOURS	130

WILDLIFE CONSERVATION CURRICULUM

Freshman Year	Semester Hours
Bacteriology 210	3
Botany 101, 104, 212	7
English 101, 102	6
Life Sciences 101	1
Mathematics 107, 108, 109	6
Social Science Elective	3
Zoology 111, 112	4
.....	30
Sophomore Year	
Botany 221, 222, 223	9
Chemistry 130, 131, 132	8
Forestry 213, 314	6
Zoology 430	3
Elective	7
.....	33
Junior Year	
Bacteriology 401	3
Botany 345	3
Chemistry 220, 223	4
Life Sciences 300	3
Veterinary Science 301, 401	6
Zoology 317, 429, 433	9
Electives	6
.....	34
Senior Year	
Botany 320, 415, 416, 441, 442, 443	14
Life Sciences 420	3
Zoology 313, 432, 434	9
Electives	7
.....	33

TOTAL SEMESTER HOURS 130

Students majoring in this curriculum may select an emphasis in Wildlife Biology. They will follow the curriculum outline with the following exceptions:

DROP: Agricultural Engineering 215; Botany 441, 442, 443.

ADD: Botany 405; Zoology 115, 116 202.

SCHOOL OF FORESTRY

The forestry program at Louisiana Tech University provides a professional education of four years leading to the degree of Bachelor of Science.

A student may pursue the Forestry Program in one of the following six options:

1. Forestry-General
2. Forestry-Business
3. Forestry-Mechanization
4. Forestry-Recreation
5. Forestry-Wildlife
6. Wood Utilization

These options are arranged so that a graduate will have both a firm foundation of technical knowledge and a broad educational background upon which to build a satisfying and constructive career in forestry or in allied fields. A student may qualify for graduate work in any of the options.

Employment opportunities are varied. Graduates are employed by both private industries and governmental agencies. Private industries include pulp and paper companies, wood preservation companies, the lumber industry, other industrial owners, forestry consulting firms, and private land owners who need professional service in forestry, land use, and conservation. Governmental agencies include federal agencies such as the Soil Conservation Service, National Park Service, United States Forest Service, and similar agencies of the state with work not only in technical forestry but also in the professional aspects of land use management, conservation, and wood utilization.

Junior Year Summer Programs

Two summer programs are offered. Successful completion of one of these at the end of the junior year is a prerequisite for senior standing. Those students who have completed all curriculum requirements through the junior year and have not less than an overall C average are eligible to participate in these summer programs. General forestry students attend a summer camp where residence is required. The summer session for the Wood Utilization students is conducted from the campus.

Summer Camp

The Louisiana Tech Forestry Camp has dormitory, dining, and classroom facilities equipped, owned and operated by the University. It is located about 30 miles north of Ruston near Corney Lake. Eighteen thousand acres of diverse forest types are made available for use by a longterm agreement with the U. S. Forest Service. The camp program is arranged to give students field experience in the forest in addition to classroom instruction.

A Land Use Seminar and Tour is conducted in conjunction with the summer camp. This includes a five to seven days trip in the Lower Mississippi Valley and allows students to view and discuss the major uses of land in this area.

Satisfactory completion of this summer camp includes the teamwork and sharing of responsibility necessary for successful group activity.

Wood Utilization Summer Session

The session includes considerable plant, forest, and laboratory work as well as classroom instruction. Applied problems in plywood manufacturing, drying, and other wood processing and testing techniques are studied. Visits are made to forests and to a diversity of wood-using plants where analysis and comparisons of operations in logging and processing are made.

Senior Field Trips

During the senior year all day Friday of each week is reserved for required laboratory trips to forest areas or wood-using plants. This enables the senior students to observe and to take part in numerous forestry, research, and wood-using activities being carried on by private companies and governmental agencies. Practically all of the important forest types, patterns of ownership, and a wide variety of wood-using industries are located within traveling distance of the campus.

Expenses

In addition to the regular expenses of the University, each student is required to purchase for use during the junior and senior years: a drawing set and a hand lens. These must be of a quality approved by the School. All students should have access to a typewriter for the purpose of preparing laboratory and other reports. The School recommends, but does not require, that each student have a camera for use on field trips and a pocket calculator during the summer camp. (Consult your instructor before buying a calculator.)

Field trips cannot always be arranged within the scheduled laboratory hours which, in some cases, means leaving the campus earlier and returning later than the published schedule. Arrangements for lunches, the purchasing of meals, and the payment of lodging in those instances where overnight trips are necessary are the responsibility of the individual student. This includes the special summer program. In addition to regular summer session expenses, a special fee is charged each student who attends the summer camp or the wood utilization summer session. Summer camp students are charged the dormitory cost on the basis of the regular quarter and do not qualify for any reduced residence hall cost applicable during the summer.

Each student registering for any forestry course involving field laboratory work should have, for self protection an accident insurance policy. Policies are available during registration to all students for a reasonable rate per quarter.

A number of student assistants are employed by the School each year. This enables the students to work part time while attending school.

Professional Organization

The School sponsors the Louisiana Tech Student Chapter of the Society of American Foresters and the student Chapter of the Forest Products Research Society for social and professional activity of forestry students and faculty.

FORESTRY CURRICULUM

GENERAL FORESTRY OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Botany 101, 104.....	4
Economics 215.....	3
English 101, 102.....	6
Forestry 101.....	2
Life Sciences 101.....	1
Mathematics 111, 112.....	6
Political Science 201.....	3
Zoology 111.....	3
	29
Sophomore Year	
Accounting 203.....	2
Agronomy 200, 202.....	4
English 303.....	3
Chemistry 101, 102, 103, 104.....	8
Forestry 202, 205, 206, 314.....	9
Quantitative Analysis 220.....	3
Electives.....	2
	31
Junior Year	
Civil Engineering 304.....	2
Forestry 301, 302, 305, 306, 312, 313.....	17
Physics 209, 261.....	4
Speech 377.....	3
Electives.....	6
	32
Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322.....	12
Senior Year	
Agricultural Engineering 340, 431.....	4
Forestry 401, 403, 407, 409, 410, 411, 416, 422.....	19
Life Sciences 420.....	3

Electives.....2

28

TOTAL SEMESTER HOURS132

BUSINESS OPTION

Freshman Year Semester Hours

Agricultural Engineering 110.....1
Botany 101, 104.....4
Computer Science 102.....3
English 101, 102.....6
Forestry 101, 202.....4
Life Sciences 101.....1
Math 111, 112.....6
Political Science 201.....3
Zoology 111.....3

31

Sophomore Year

Accounting 203, 204, 210.....7
Agronomy 200, 202.....4
Civil Engineering 304.....2
Chemistry 101, 102, 103, 104.....8
Economics 215.....3
Forestry 205, 206.....4
Math 220.....3

31

Junior Year

English 303.....3
Finance 442, 443.....6
Forestry 301, 302, 306, 312, 313.....14
Physics 209, 261.....4
Speech 377.....3

30

Summer Session—Forestry Camp

Forestry 315, 316, 320, 321, 322.....12

Senior Year

Business Law 355.....3
Forestry 401, 403, 409, 410, 411, 416, 422.....16
Quantitative Analysis 233.....3
Electives.....6

28

TOTAL SEMESTER HOURS132

MECHANIZATION OPTION

Freshman Year Semester Hours

Agricultural Engineering 110, 211, 214.....5
Botany 101, 104.....4
Chemistry 120, 121, 123.....5
English 101, 102.....6
Forestry 101.....2
Life Sciences 101.....1
Mathematics 111, 112.....6

29

Sophomore Year

Accounting 203, 204.....4
Agricultural Engineering 210, 216, 320.....8
Chemistry 122, 124.....3
Civil Engineering 304.....2
Economics 215.....3
Forestry 202, 205.....4
Physics 209, 261.....4
Political Science 201.....3

31

Junior Year

Accounting 210.....3
English 303.....3
Forestry 301, 306.....6
Management 311, 312, 340.....9
Quantitative Analysis 220.....3
Speech 377.....3
Electives.....3

30

Summer Session—Forestry Camp

Agricultural Engineering 418, 340, 415.....7
Electives.....3

10

Senior Year

Agricultural Engineering 431.....2
Forestry 401, 403, 407, 409, 416, 420B.....16
Industrial Engineering 409.....3
Life Sciences 420.....3
Electives.....6

30

TOTAL SEMESTER HOURS130

RECREATION OPTION

Freshman Year Semester Hours

Agricultural Engineering 110.....1
Botany 101, 104.....4
English 101, 102.....6
Forestry 101.....2
Life Sciences 101.....1
Mathematics 111, 112.....6
Psychology 102.....3
Physics 209, 261.....4
Zoology 111.....3

30

Sophomore Year

Agronomy 200, 202.....4
Chemistry 101, 102, 103, 104.....8
Economics 215.....3
English 303.....3
Forestry 202, 205, 206.....6
Political Science 201.....3
Quantitative Analysis 220.....3
Sociology 201.....3

33

Junior Year

Agronomy 312.....3
Civil Engineering 304.....2
Forestry 301, 302, 306, 312, 313.....14
Health & Physical Education 225.....3
Sociology 340.....3
Speech 377.....3

28

Summer Session—Forestry Camp

Forestry 315, 316, 320, 321, 322.....12

Senior Year

Agronomy 315.....4
Forestry 401, 409, 410, 411, 422.....12
Journalism 450.....3
Life Sciences 420.....3
Electives.....8

30

TOTAL SEMESTER HOURS132

WILDLIFE OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Botany 101, 104.....	4
Economics 215.....	3
English 101, 102.....	6
Forestry 101.....	2
Life Sciences 101.....	1
Mathematics 111, 112.....	6
Political Science 201.....	3
Zoology 111.....	3
	29
Sophomore Year	
Agronomy 200, 202.....	4
Botany 320.....	3
Chemistry 101, 102, 103, 104.....	8
English 303.....	3
Forestry 202, 205, 206.....	6
Physics 209, 261.....	4
Zoology 202.....	4
	32
Junior Year	
Botany 223.....	3
Civil Engineering 304.....	2
Forestry 302, 306, 312, 314.....	11
Quantitative Analysis 220.....	3
Speech 377.....	3
Zoology 313, 317.....	6
Electives.....	2
	30
Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322.....	12
Senior Year	
Botany 345.....	3
Forestry 401, 409, 410, 416, 422.....	13
Life Sciences 420.....	3
Zoology 432, 433.....	6
Electives.....	4
	29
TOTAL SEMESTER HOURS.....	132

WOOD UTILIZATION OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Botany 101, 104.....	4
Economics 215.....	3
English 101, 102.....	6
Forestry 101.....	2
Life Sciences 101.....	1
Mathematics 111, 112.....	6
Political Science 201.....	3
Zoology 111.....	3
	29
Sophomore Year	
Accounting 203, 204.....	4
Chemistry 101, 102, 103, 104.....	8
Engineering Mechanics 201.....	2
Forestry 205.....	2
Forestry 206.....	2
History 201.....	3

Mathematics 220.....	3
Physics 209, 261.....	4
Quantitative Analysis 220.....	3
	31
Junior Year	
Accounting 210.....	3
English 303.....	3
Engineering Mechanics 301.....	2
Forestry 305, 306, 408.....	9
Management 311.....	3
Marketing 300.....	3
Quantitative Analysis 233, 338 or 339.....	6
Industrial Engineering 409.....	3
	32
Summer Session	
Forestry 340, 341.....	6
Electives.....	4
	10
Senior Year	
Chemistry 220, 223.....	4
Forestry 414, 416, 420C.....	7
Finance 318.....	3
Industrial Engineering 425.....	3
Speech 377.....	3
Electives.....	10
	30
TOTAL SEMESTER HOURS.....	132

DIVISION OF NURSING

NURSING CURRICULUM

The Nursing Curriculum, a two year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

PRE-NURSING CURRICULUM

(Northwestern State University - Louisiana Tech University Interinstitutional Program for the Bachelor of Science Degree)

Freshman Year	Semester Hours
Life Sciences 101.....	1
Chemistry 130, 131, 132.....	9
English 101, 102, 201 or 202.....	9
Mathematics 110, 111.....	6
Speech 110.....	3
Zoology 111.....	3
	31
Sophomore Year	
Bacteriology 212, 213.....	4
Health and Physical Education.....	1
History 101 or 102 or 201 or 202.....	3
Home Economics 203.....	3
Psychology 102, 408.....	6
Zoology 225, 226.....	4
	21

After completing above curriculum the student may transfer to the Shreveport campus to complete the requirements for the baccalaureate degree.

Required electives may be taken at NSU.

DEPARTMENT OF ZOOLOGY

Students desiring to complete a degree program in the Department of Zoology will consult with the head of the department.

During the sixth quarter of residence (and later as may be necessary) students will present to their advisors, for discussion and approval, the program of study they intend to pursue during their junior and senior years.

Degree Programs

The degree programs offered through the Department of Zoology are:

(1) Bachelor of Science degree in Zoology. Both students who have a primary interest in zoology and students who plan on applying to medical or dental school will follow the Zoology Curriculum.

(2) Master of Science degree in Life Sciences with a specialty in Zoology.

Requirements For A Major

All students majoring in zoology will satisfactorily complete the courses specified in the Zoology Curriculum. The elective subjects will be selected with the advice and approval of the advisor.

The Department of Zoology reserves the right to accept toward graduation only credits with a C or higher grade in Zoology courses.

Requirements For A Minor

A student wishing to minor in Zoology may do so by declaring this intention with the Zoology Department Head and by completing the core courses in the Zoology Curriculum, a total of 22 semester hours.

ZOOLOGY CURRICULUM

For Zoology majors and for pre-medical and pre-dental students following the Zoology Curriculum.

Freshman Year	Semester Hours
Botany 101, 104.....	4
Chemistry 101, 102, 103, 104.....	8
English 101, 102.....	6
Life Sciences 101.....	1
Mathematics 111, 112 or 230, 231.....	6
Zoology 111, 112, 115, 116*.....	8
	33

Sophomore Year	
Chemistry 250, 251, 252, 253, 254.....	8
English 201, 202.....	6
Zoology 310*.....	3
Bacteriology 212.....	4
Social Sciences (Include General Psychology) *.....	6
Zoology 202, 313.....	7
	34

Junior Year	
Chemistry 205, 351, 352, 353, 354.....	12
Foreign Language (six hours in the same language).....	6
Zoology Electives.....	3
Zoology 320, 321*.....	4
Physics 209, 210, 261, 262.....	8
Zoology 480 (one of two quarters required).....	1
	34

Senior Year	
Life Sciences 420.....	3
Continuation of same Foreign Language, Advanced Science, Mathematics or Computer Science.....	6
Social Sciences**.....	3
Zoology 480 (one of two quarters required).....	1
Zoology Electives.....	11
Free Electives.....	4
	28

TOTAL SEMESTER HOURS..... 129

*Core courses should be completed by end of Junior year.

**To be selected from courses in Economics, Geography, History, Political Science, Psychology or Sociology with the advice and approval of your advisor.

Pre-medical and Pre-dental students are strongly advised to complete their degree programs before entering medical or dental school. Students with an exceptionally high grade point average may apply early in their junior year for admission to medical or dental school upon completion of that year. This practice is not recommended by the Pre-medical/Pre-dental Advisory Committee. If a student successfully completes the junior year of the Zoology curriculum including the core courses, the first year of medical or dental school, and all other requirements for graduation of Louisiana Tech University and the Zoology Department, the student may become a candidate for the Bachelor of Science degree.

The Graduate School

ADMINISTRATION

JOHN E. MAXFIELD, Dean

The Dean of Graduate Studies administers and coordinates the graduate programs of the University. Graduate instruction is supervised by the appropriate academic deans, directors of graduate studies, department heads, and graduate faculty under policies set forth by the Board of Trustees for State Colleges and Universities and the Graduate Council chaired by a faculty representative. The President of the University is the final local authority in the operation of the graduate program.

STUDENT RESPONSIBILITY

Each graduate student must assume the responsibility for becoming knowledgeable concerning Graduate School regulations and requirements.

GRADUATE PROGRAMS

Graduate degrees granted by the University are:

- Master of Arts
- Master of Business Administration
- Master of Fine Arts
- Master of Professional Accountancy
- Master of Science
- Specialist
- Doctor of Business Administration
- Doctor of Engineering
- Doctor of Philosophy

The graduate degrees and curricula, by colleges, are as follows:

COLLEGE OF ADMINISTRATION AND BUSINESS

Master of Business Administration (Specialties available as follows:)

- General (no specialty)
- Accounting
- Business Education
- Economics
- Finance
- Management
- Marketing
- Quantitative Analysis
- Master of Professional Accountancy
- Doctor of Business Administration

COLLEGE OF ARTS AND SCIENCES

Master of Arts (Curricula available as follows:)

- English
- History
- Speech
- Speech Pathology & Audiology
- Master of Fine Arts
- Master of Science (Curricula available as follows:)
- Chemistry
- Mathematics
- Physics

COLLEGE OF EDUCATION

Master of Arts (Curricula as follows:)

- Art Education
- Counseling and Guidance
- Elementary Education
- English Education

- Human Relations and Supervision
- Music Education
- Reading
- Social Studies Education
- Special Education
- Speech Education
- Speech Pathology & Audiology Education
- Master of Science (Curricula as follows:)
- Business Education
- Health and Physical Education
- Mathematics Education
- Science Education (Biology, Chemistry, or Physics)
- Specialist

COLLEGE OF ENGINEERING

Master of Science

A student selects an area of emphasis in concert with the advisory committee. The major engineering disciplines are available, as follows:

- Agricultural Engineering
- Biomedical Engineering
- Chemical Engineering
- Computer Science
- Civil Engineering
- Electrical Engineering
- Geology
- Industrial Engineering (including Operations Research option)
- Mechanical Engineering
- Petroleum Engineering
- Doctor of Engineering
- Energy
- Environment
- Electronics and Computers
- Human Accommodation Design
- Doctor of Philosophy
- Biomedical Engineering

COLLEGE OF HOME ECONOMICS

Master of Science (Options available as follows:)

- General Home Economics
- Home Economics Education
- Institution Management

COLLEGE OF LIFE SCIENCES

Master of Science in Life Sciences (Options in the following fields:)

- Botany
- Microbiology
- Zoology

ADMISSION

A student will not receive graduate credit for any course taken unless he or she has complied with the following admission procedures and has been accepted for admission to the Graduate School.

For admission to Graduate School, the applicant must satisfy all general admission requirements for Louisiana Tech University. Application forms for admission may be obtained from the Admissions Office or the Graduate School. ALL NECESSARY OFFICIAL TRANSCRIPTS, STANDARDIZED TEST SCORES, AND ADMISSION APPLICATION FORMS must be received in the Admissions Office at least 2 weeks in advance of registration for the session in which the student expects to

enroll. Policies governing the submission of transcripts for all graduate students are as follows:

(1) Students in pursuit of a master's degree must submit ALL official undergraduate transcripts (regardless of the number of colleges attended in order to earn the baccalaureate degree) so that a full evaluation of the grade point average may be made. In addition, all transcripts of any graduate work attempted at other colleges and universities are required. Students applying for unclassified status must meet the same transcript requirements listed in this section.

(2) Those students in pursuit of a doctoral degree or a specialist degree must submit all official transcripts (undergraduate and graduate) for evaluation of eligibility for these programs.

(3) Those students in pursuit of the "Master's Plus 30" program must submit only the official transcript certifying receipt of the master's degree from a regionally accredited institution.

(4) Those students applying for transient status must submit only an official copy of a transcript certifying that they are actively pursuing an advanced degree at another institution.

(5) If permission to enter the Graduate School is given prior to graduation, this admission is automatically withdrawn if the Bachelor's degree is not awarded before the date of registration.

NON-DEGREE STUDENT'S ADMISSION

1. Unclassified: Students seeking graduate credit but not seeking a higher degree must meet the same academic requirements for admission to Graduate School as students admitted to work toward a master's degree.

2. Transient: Students admitted to a graduate program at another institution wishing to take a course(s) for transfer credit may be allowed to take such a course(s) with the approval of the Director of Graduate Studies in the college in which he or she would normally enroll. A maximum of 12 hours of transient credit will be allowed. Transcripts shall note that such credit is for transfer only.

3. Master's Plus 30: Students who have earned a master's degree from a regionally accredited institution are admissible to the Graduate School on this basis. However, this action does not admit the student to any specific program of study within the Graduate School automatically.

MASTER'S PROGRAM ADMISSION

Certain minimum admission standards are established by the Graduate Council for the University. Each academic college has the prerogative to be more selective and establish higher standards for its respective graduate students.

APPLICANTS FOR READMISSION to Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the summer term.)

UNCONDITIONAL ADMISSION

Unconditional Admission requires that the applicant must have earned a bachelor's degree from a regionally accredited college or university and must have achieved a minimum grade point average of 2.50 (4.0 system) on all work attempted or 2.75 on the last 60 hours attempted. The final decision rests with the Dean of Graduate Studies and is based upon the recommendation of the Admissions Committee of the academic college the student wishes to enter.

CONDITIONAL ADMISSION

Conditional Admission may be gained by those applicants not qualified for unconditional admission, while satisfying or validating their undergraduate deficiencies, provided that they have a grade point average of 2.25 on all work attempted or a 2.50 average on the last 60 hours attempted and present a

satisfactory standardized test score prior to admission. The final decision rests with the Dean of Graduate Studies and is based upon the recommendation of the Admissions Committee of the academic college the student wishes to enter.

Conditional Status may be changed to Unconditional Status when a student earns a minimum of 9 hours of graduate credit at Louisiana Tech, provided he or she has a B average on all work pursued for graduate credit, including no grade lower than C and not more than one course with a grade of C. When a student completes 9 hours of graduate credit and is not eligible for unconditional status, the student will be dropped from graduate status.

Each graduate student seeking admission to a degree program will be required to take the standardized test(s) specified by the academic college. Applications for the appropriate test may be obtained from the Counseling Center, Keeny Hall 322. Those students qualifying for unconditional admission who have not submitted a standardized test score may be granted provisional admission and allowed to submit the test score during their first quarter of enrollment as a graduate student, unless otherwise specified by the appropriate college. Students who fail to submit a test score by the specified deadline will be dropped from graduate status until a satisfactory test score has been received; those students provisionally admitted who do not submit a satisfactory test score will be subject to reexamination by the Admissions Committee of the appropriate academic college. Students seeking conditional admission will be required to submit the specified test scores before an admission decision is made.

SPECIALIST'S PROGRAM ADMISSION

Those students interested in admission to the Specialist Degree program are referred to the College of Education section of this catalog.

DOCTORAL PROGRAM ADMISSION

Applicants for admission to the programs of study leading to the doctoral degree will be granted either an unconditional admission or will be rejected. Admission shall anticipate a minimum preparation to proceed at the doctoral level of study and shall consist of a bachelor's degree from a recognized institution and a transcript demonstrating sufficient undergraduate preparation for advanced study in both major and minor fields. Usually, although not necessarily, the applicant will possess a master's degree. In addition to formal courses and credits demonstrating adequate preparation, an acceptable report on the Graduate Record Examination or a designated comparable standard instrument, such as the Graduate Management Admission Test is required. Applications and other information may be obtained from the Counseling Center, Keeny Hall, Room 322.

A minimum of three references is required. A locally administered screening or qualifying examination, or an interview of the applicant may be required at the direction of the admitting college. It is emphasized that no quantitative standards are set and that admission is a judgment of the admissions committee of the appropriate college. This committee makes its recommendation to the Graduate Office.

The Dean of Admissions will receive and expedite the handling of all admission documents. Complete transcripts of the applicant's undergraduate and graduate record, and of all academic work taken at other institutions, must be submitted to the Admissions Office in order to have a doctoral application considered. The applicant should consult the doctoral admission requirements for the appropriate college in order to determine that area's specific requirements as to test scores and other items. Each academic college has the prerogative to be more selective and establish higher standards for its respective graduate students.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A graduating senior at Louisiana Tech University who has a 3.0 or better average on all work attempted may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 12 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted). A graduating senior who has a 2.5 average or better on all work pursued may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 8 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted).

TESTING

All colleges require that a student wishing to enter Graduate School take the appropriate test (s):

College of Administration and Business: Graduate Management Admission Test for both master's and doctoral students.

College of Arts and Sciences: Graduate Record Examination (aptitude).

College of Education: Miller Analogies Test or Graduate Record Examination (aptitude) for both master's and specialist's students.

College of Engineering: Graduate Record Examination (aptitude) for masters and advanced in engineering for doctoral students.)

College of Home Economics: Miller Analogies Test or Graduate Record Examination (aptitude).

College of Life Sciences: Graduate Record Examination (aptitude) for all master's programs plus the following advanced scores: Biology for botany program; Biology for microbiology program; and Zoology for zoology program.

All foreign students are required to submit a score on the test of English as a Foreign Language before their applications can be evaluated.

For additional information and to register for these tests, contact the Counseling Center, P. O. Box 5255 TS, Ruston, LA 71272. Telephone (318) 257-2488.

SUMMARY OF ADMISSION PROCEDURES

PROCEDURE	INITIATE THROUGH	TIME
1. Obtain application for Admission forms	Dean of Admissions	At least 4 weeks prior to registration
2. Return completed forms	Dean of Admissions	Must be received at least 2 weeks prior to registration
3. Have all necessary official transcripts and test scores sent to Tech	Dean of Admissions	Must be received at least 2 weeks prior to registration
4. Comply with any additional requirements of individual graduate programs as specified in this Catalog	Director of Graduate Studies in individual college	At discretion of College
5. Follow registration procedure as outlined in the Quarter Bulletin	Registrar's Office	Registration Period

GENERAL REQUIREMENTS FOR ALL ADVANCED DEGREES COURSES

All 500-level courses, and above, are open only to graduate students. Courses numbered 400 are for seniors but may carry graduate credit. Also, in some cases, a 300-level course may be approved for graduate credit. Students taking 300- and 400-level courses for graduate credit are normally required to undertake additional work in order to bring the course requirements up to graduate level.

The semester hour is the unit of credit at Louisiana Tech. Most courses carry a credit of three semester hours and meet three times a week for a quarter. Credit for each course is indicated by the numerical description, as 0-3-3; the first number indicates laboratory contact hours per week; the second, lecture periods per week (90-minute periods with break between classes included); and the third, credit in semester hours.

GRADE REQUIREMENT

To receive a graduate degree a student must have an average of at least 3.0 on all work pursued for graduate credit while registered at Louisiana Tech. A student will be dropped from graduate status if either his or her cumulative average and/or his or her average for the quarter is below 3.0 on work pursued for graduate credit for three consecutive quarters in attendance.

The above grade rule applies both to students working toward a graduate degree and to those graduate students who are not seeking graduate degrees.

GRADING SYSTEM

The official grades of graduate students are recorded in the Office of the Registrar. The Registrar provides official transcripts on the same basis as for undergraduate students.

The University's system of grading is as follows:

Grade	Quality Points
A	4 quality points per semester hour

B	3 quality points per semester hour
C	2 quality points per semester hour
D	1 quality points per semester hour
F	0 quality points per semester hour
I	(see explanation below)
S	(see explanation below)
W	(see explanation below)

An F is a failure and does not carry credit in the course. The grade I plus the average letter grade on all work completed is used to denote failure to complete assigned class work and/or examinations because of conditions beyond the student's control. If the grade I has not been removed by the end of the fourth week of the following quarter, a grade of F will be recorded, except on research and thesis courses numbered 551 and 580 and on research and dissertation courses numbered 590. The grade S (satisfactory) is used for courses numbered 551, 580, and 590. Also, the only grades used for these courses are I and S.

The W grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The W grade is not included in computing the student's average. If a student resigns from school after the first six weeks, his or her instructor will submit grades of W plus the student's average letter grade at the time of withdrawal. However, if the student resigns during the last two weeks of classes, he or she will be given an F. These grades (W plus average) will be recorded on the graduate student's permanent record but will not be included in the computation of the average. A student who withdraws from a class after the first six weeks of a quarter will receive an F in the course.

REGISTRATION AND CLASSIFICATION

Graduate students will conform to the registration schedule of the University and may not enter later than the last allowable date set by the Registrar. Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research or preparing for or taking examinations will be required to register and pay fees.

Before registering, a graduate student must obtain his or her advisor's approval of his proposed program.

FINANCIAL AID

Graduate assistantships for master's degree candidates, and teaching and research assistantships for students pursuing the doctoral program are offered. A student should check with the appropriate College for information concerning these assistantships.

In addition, a limited number of University Graduate Assistantships for masters and specialist students, and University Teaching or Research Assistantships for doctoral students are available to outstanding students. Applications for University Assistantships should be in the Graduate Office by February 1 preceding the fiscal year for which application for admission is made (fiscal year begins July 1). An applicant must be eligible for admission to the Graduate School; must generally have an undergraduate grade point average of at least 3.50; and submit an aptitude test score required in his field. Forms for applying for an assistantship can be obtained from Admissions or the Graduate Office.

STUDENT LOADS

The maximum graduate credit course load for a graduate student will be 12 semester hours in a regular session. Not more than 9 hours of this total may be 500-level courses which will include, in master's and specialist programs, research and thesis and/or special non-lecture courses, except with the permission of the student's Director of Graduate Studies. Students who hold full-time assistantships in a regu-

lar session will be required to reduce the maximum load by 3 hours. In addition, the department may require further load reductions. For sessions shorter than one quarter, the maximum load will be 1 hour of graduate credit for each week of the session.

The minimum load to qualify as a full-time graduate student is 6 semester hours per quarter.

LANGUAGE EXAMINATIONS

Regulations concerning foreign language examinations may be obtained from the Head of the Department of Foreign Languages. Proficiency examinations are given in the areas of French, German, Spanish, and Russian. Candidates for the Ph.D. degrees who wish to take foreign language proficiency examinations should enroll in the appropriate foreign language reading course-00 credit examination section: French-F. Lang. 202; German-F. Lang. 241; Spanish-F. Lang. 261; Russian-F. Lang. 250. When the student receives the-00 section class card, it will be the student's responsibility at that time to identify in writing the field of study. A special list will be kept at the Foreign Languages table for this purpose during registration. If a student wishes to present books or journals for consideration in the selection of examination material, this may be done at least 4 days before the test is to be given. The test will be given during the first week of class. The candidate is advised to talk with the appropriate examiner during the quarter preceding the examination date.

GRADUATION

Commencement exercises are held and advanced degrees may be conferred at the close of any quarter, including the summer quarter. A student who is scheduled to receive a degree at the end of a quarter is expected to attend the commencement exercises. If a candidate is absent from commencement without the approval of the President of the University, he or she will be assessed an absentee fee of \$10 and an additional \$3 "special handling" fee will be charged persons who do not pick up their diplomas at graduation when they are normally available. Degree candidates are required to arrive at the place of assembly no later than one half hour before commencement exercises are scheduled to begin.

The applicant for graduation must be registered at Louisiana Tech University. Applications for graduation must be reported to the appropriate Director of Graduate Studies and to the Registrar within the first four weeks of the quarter in which the student expects to graduate. Arrangements for caps, gowns, and hoods should be made in the Student Center Office.

GENERAL REQUIREMENTS FOR ALL MASTERS' DEGREES

Some departments impose degree requirements which are more restrictive than general requirements. The student is advised to check the department or college section of the catalog for the area of study to be pursued.

ADVISORY COMMITTEE

Advisors are assigned each student upon approval for admission to the Graduate School. After consultation with the advisor and/or department head, the academic dean will be requested to appoint an Advisory Committee consisting of three to five members of the graduate faculty. It will be the responsibility of the Advisory Committee to counsel with the student and to develop a Plan of Study which is then filed with the Graduate Office. Any graduate student following a degree program who has not submitted a Plan of Study by the end of the first quarter of graduate study will not be allowed to register as a graduate student until a Plan of Study has been submitted. Any later revision in the Plan of Study should be reported.

MINIMUM CREDIT REQUIREMENT

The minimum credit requirement for the master's degree is 30 semester hours of graduate work, not more than 6 of which may be allowed for research and thesis. In optional programs not requiring a thesis, the standard course requirements should not be less than 30 hours. Students who do not write a thesis must demonstrate acceptable proficiency in research and reporting. A minimum of one-third of the credit for the degree must be in courses open only to graduate students.

RESIDENCE, EXTENSION, AND CORRESPONDENCE CREDITS

No more than 12 credit hours for a master's degree may be earned through extension credits. The programs at Barksdale and Rome, Italy, are not extension operations but are off-campus units granting residence credits. No correspondence credits are applicable toward a master's degree.

TRANSFER CREDITS

A student is required to earn a minimum of 24 graduate credit hours from Louisiana Tech in order to be eligible to receive a master's degree. The additional hours required for the master's degree may be transferred from another institution provided that the institution is regionally accredited, the grade earned is B or above, and the credits are accepted as applicable to the master's degree program by the student's academic college.

THE THESIS

The requirement of a thesis varies within the University; therefore, the prospective student should check the college and/or departmental sections of the catalog for their stipulations. General requirements, applicable to all graduate students meeting this thesis requirement (regardless of the field of study in which they pursue their work), are enumerated below.

A thesis subject should be selected by the student — in consultation with the student's advisor — and approved by the Advisory Committee. With permission of the Advisory Committee, a student not in residence but who has satisfied all course requirements may complete the thesis "in absentia."

The research and thesis may not exceed 12 hours credit and must be certified by registration in and completion of all requirements of the Research and Thesis Courses, numbered 551. If the student does not complete the course during the quarter in which he or she is registered for it, an incomplete or I grade will be given in the course until such time as all requirements are completed, including the thesis. The limit on clearing this grade is 6 years from initiation of the graduate program or graduation, whichever comes first.

The thesis, in order to be approved, must be written in correct English and in scholarly form. It must show independent thought, both in its recognition of a clearly defined problem and in its method of treatment. It must reveal the sources of information and a knowledge of the bibliography of a special field.

The publication "**Guidelines for the Preparation of Theses and Dissertations**" is available in the Graduate Office and should be used as a guide in the preparation of the thesis. The thesis must be submitted to the Director of Graduate Studies 10 days before the expected date of graduation and to Prescott Memorial Library 7 days before the expected date of graduation. The Director of Graduate Studies in each academic college will notify the Academic Dean and the Graduate Office that the candidate has completed all requirements other than the final quarter's grades and is eligible to receive the master's degree.

Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research will be required to register and pay fees.

EXAMINATIONS

Oral and/or written comprehensive examinations will be administered by the Advisory Committee sufficiently in advance of graduation. This is necessary in order that the Dean of the academic college (or a representative) in which the student is a candidate for a graduate degree may notify the Graduate Office. This notification should be made at least one week before commencement and should state that all requirements have been satisfied, contingent upon satisfactory grades for the final quarter. Otherwise, the candidate will be delayed one quarter in receiving his or her degree. A student who does not successfully pass the comprehensive examination is entitled to one repeat examination.

No oral or written comprehensive is required for the MBA and MPA.

TIME LIMIT FOR DEGREE

A time limit for the completion of all requirements for the master's degree has been set at 6 consecutive calendar years from the time of initial enrollment.

A SECOND MASTER'S DEGREE

A student pursuing a second master's degree must earn a minimum of 15 additional graduate hours at Louisiana Tech and must satisfy the requirements for a minimum number of exclusively graduate courses, in addition to the thesis, to be taken in the area in which the second degree is being earned.

GENERAL REQUIREMENTS FOR SPECIALIST DEGREES

Those students interested in pursuit of the Specialist Degree are referred to requirements as listed under the College of Education section of this catalog.

GENERAL REQUIREMENTS FOR ALL DOCTORAL DEGREES

The doctoral degree is not awarded on the basis of completion of a course of study, however well done. Instead, the degree is earned by intensive individual study, inquiry, and original research by a well-qualified candidate under the close supervision of a major professor and an Advisory Committee. The program must be tailored to the needs and interests of the candidate and to the needs and demands, present and future, of his or her profession. As a result, the modern doctoral candidate must expect to exhibit or develop a high level of competency and habits and skills of individual inquiry and original research which characterize the doctorate. Consequently, it is neither possible nor desirable to set firm and rigid requirements.

The student is advised to check the departmental or college section of the catalog for the area of study to be pursued. In some cases, the college or area requirements may be more restrictive than these general requirements for the doctoral programs.

MINIMUM CREDIT REQUIREMENT

Formal course work is of indisputable value to bring the student into a scholarly relationship with members of the graduate faculty and to demonstrate accepted knowledge of a subject. A minimum of 60 semester hours credit of formal course work beyond the baccalaureate degree, exclusive of credit for research and thesis courses and research and dissertation courses, is required.

ADVISORY COMMITTEE

During the first quarter in which students are enrolled in Graduate School, they should report to the appropriate Director of Graduate Studies to request the appointment of an Advisory Committee. The responsibilities of the Advisory Committee include counseling with the student to develop a Plan of Study. A copy of this degree program should be filed with the Graduate Office during the student's first quarter of enrollment in a graduate degree program. Any graduate student who has not submitted a Plan of Study by the end of the first quarter of graduate study will not be allowed to register as a graduate student until a Plan of Study has been submitted. All formal course work must be approved by the Advisory Committee as acceptable for graduate credit.

MAJORS AND MINORS

It shall be the responsibility of the student's Advisory Committee to explore with him or her and, subsequently, to define for the student his or her obligations toward majors and minors. The general content and scope of these majors for the disciplines involved shall have been approved by the Graduate Council and shall be so framed that their integrity is served in the administration of the program.

RESEARCH AND DISSERTATION

The dissertation is required of all candidates for the doctoral degree and must be supported by adequate research and independent study of a problem of reasonable scope under the direction of the student's Advisory Committee. A minimum of 15 and a maximum of 30 semester hours credit is granted for this research and dissertation through the medium of appropriate registrations as guided by the student's Advisory Committee. Grades of I and S are used for these courses. The dissertation must be submitted to the appropriate Director of Graduate Studies 10 days before the expected date of graduation and to Prescott Memorial Library 7 days before the expected date of graduation.

The publication "**Guidelines for the Preparation of Theses and Dissertations**" is available in the Graduate Office and should be used as a guide in the preparation of theses and dissertations. The University participates in the service for publication of doctoral dissertations provided by University Microfilms. Each abstract is published in "**Dissertation**

Abstracts," along with a positive copy which is sent to the Library of Congress. The doctoral candidate is advised to check with Prescott Memorial Library concerning this program.

LANGUAGE REQUIREMENTS

Foreign languages are thought of as instruments of research and continuing access to information about foreign culture and scholarship. A reading knowledge of two foreign languages selected by the student and his Advisory Committee is the general requirement. Substitutions for languages may be permitted in some fields. In the Doctor of Business Administration (DBA) program there is no language requirement.

EXAMINATIONS AND ADMISSION TO CANDIDACY

After completion of a minimum of two full academic years of graduate work and after compliance with the language and/or tool requirements, comprehensive examinations (general examinations) are required to determine whether or not the student is ready to be admitted to candidacy for the doctoral degree. The results of these examinations may also determine additional work to be taken and may determine the feasibility of the dissertation project.

An examination defending the dissertation must be completed successfully at least two weeks prior to the date the degree is expected to be received.

RESIDENCE REQUIREMENT

The minimum residence requirement for the doctoral degree shall be eight quarters beyond the bachelor's degree. The student is required to spend at least three quarters beyond the first year of graduate study in continuous residence. The transfer of course work from a recognized graduate school carries with it the transfer of residence credit, but a minimum of 24 semester hours of graduate credit beyond the first year of graduate study must be earned in residence at Louisiana Tech University.

TIME LIMITATION

The doctoral degree must be completed within 5 consecutive calendar years after the successful completion of the student's comprehensive (general) examinations.

GRADUATE PROGRAMS

College of Administration and Business

OFFICERS OF INSTRUCTION

BOB R. OWENS - Dean
PHILIP F. RICE - Director, Graduate Division
JAMES R. MICHAEL - Director, Research Division
HOMER G. PONDER - Director, Undergraduate Division
H. J. SMOLINSKI - Director, School of Professional Accountancy
JAMES L. HESTER - Head, Department of Business
THOMAS S. SALE - Head, Department of Economics and Finance
REBA K. NEEL - Head, Department of Office Administration

All graduate programs are designed to prepare students to engage in professional and/or administrative careers in business and government and to enter the teaching profession. Students may enter the masters and doctoral programs any quarter. Each graduate student has an Advisory Committee to help plan his/her program and tailor it to individual needs and objectives. In the College, no grade less than C will be accepted on courses taken for graduate credit in a student's degree program.

The College of Administration and Business offers the Master of Business Administration degree, the Doctor of Business Administration degree, and the Master of Professional Accountancy degree. The Undergraduate Division provides a broad range of programs with a student body of 1,500 admitted students. The third division of the College, the Research Division, has an extensive and growing research program that adds much to the graduate programs.

ACCREDITATION

The College of Administration and Business is a fully accredited member of the American Assembly of Collegiate Schools of Business (AACSB). Louisiana Tech University is accredited by the Southern Association of Colleges and Secondary Schools (SACS). This accreditation covers the College of Administration and Business as one of the six colleges of the University and includes all curricula offered by the College. The Research Division, College of Administration and Business, is a fully accredited member of the Association for University Business and Economic Research (AUBER).

GRADUATE ASSISTANTSHIPS AND INSTRUCTORSHIPS

A limited number of graduate assistantships are available each year to students of high academic accomplishment. The stipend for graduate assistants is \$4,000. The graduate student who holds an assistantship is expected to carry a reduced classwork load which will vary depending on his/her scholastic record and amount of work required by the assistantship. Teaching and research assistantships are awarded to doctoral students. The salary paid for these part-time teaching or research assignments is normally \$5,800.

RESEARCH DIVISION, COLLEGE OF ADMINISTRATION AND BUSINESS

The Research Division, College of Administration and Business, organized in the spring of 1948, is a member of the Association for University Business and Economic Research

(AUBER). All faculty members in the College of Administration and Business are staff members of the Research Division, College of Administration and Business. The purposes of the Division are: To encourage and promote research by faculty members in the various fields in the College of Administration and Business; to render technical assistance to faculty members and graduate students, particularly doctoral students, conducting research and assist in securing funds for research projects; to publish monographs and bulletins where it is deemed they will be of practical use to business and professional people; to plan and promote conferences and seminars conducted in the College of Administration and Business and publish the proceedings; to promote and conduct research on the Louisiana economy, including the preparation of economic and population data series; to develop cases, problems, and special syllabi for use in teaching courses offered in the College of Administration and Business.

MASTER OF BUSINESS ADMINISTRATION CURRICULUM

PURPOSE OF THE MBA

The Master of Business Administration degree has, in recent years, come to be the prestige degree in administration; and the number of students pursuing it is expanding quite rapidly. The College of Administration and Business offers this degree program with two objectives in mind. The first objective is to provide graduate instruction for students who have a major at the undergraduate level in one of the fields commonly offered by colleges of business administration. For these students, the program generally takes one year to complete and it offers a modest specialization with most of the work designed to strengthen their knowledge and skills in the area of management and administration.

The second objective is to provide a masters degree program for students whose undergraduate major was in a field outside the College of Administration and Business, in such areas as science, engineering, social science, agriculture, or some other field. For these students, the program generally takes two years except for those students who planned to take the MBA and, therefore, during their undergraduate program elected the foundation courses for the MBA or at least as many of them as they could schedule. For these students, the MBA degree program will take less than two years and for some only one year. Business, industry, governmental agencies, and other organizations are interested in obtaining some employees with a background in liberal education or a specialty at the undergraduate level in some field other than business, but who have capped their education with a masters degree with emphasis on the science and art of administration. Significant numbers of such holders of the non-business bachelors degree are now entering graduate school to pursue the MBA degree. Also, many industries are making it possible for students to return to the University to obtain the MBA degree after they have had work experience so that they can go back to their employment with better preparation for further advancement.

THE MBA PROGRAM

Many students entering the MBA program are from areas other than business and must take certain undergraduate courses comprising a "common body of knowledge" of

business core. Also, each student is presumed to have had college-level work in QA 390 (calculus & linear algebra) or the equivalent or take the course to remove the deficiency.

First presented below are the foundation courses which students must take if they did not pursue them while earning the undergraduate degree. The second group of courses, listed under the graduate phase, are the courses that all students on the MBA programs must take.

No grade lower than C is normally acceptable on any undergraduate course used to satisfy the foundation requirement on the MBA program. In addition, individuals must normally earn a B average on foundation courses taken either as a graduate student or as post-baccalaureate work. The Director of the Graduate Division, College of Administration and Business, determines the acceptability of all work offered in satisfaction of the foundation and prescribes proper courses taken necessary to meet this requirement.

THE FOUNDATION

The following undergraduate courses are required as preparation for the graduate courses:

*Accounting 203, 204, 205 - Elementary	
Accounting I, II, III	6
Business Law 355 - Legal Environment of Business	3
Economics 215 - Fundamentals of Economics	3
Finance 318 - Business Finance	3
Management 311 - Organizational Behavior, Planning & Control	3
Marketing 300 - Marketing Principles & Policies	3
Quantitative Analysis 220 - Introduction to Business Information Systems	3
Quantitative Analysis 233 - Business Statistics	3
Quantitative Analysis 333 - Operations Management	3
TOTAL	30

*For the student who plans to earn a specialty in accounting, Accounting 303, 304, 305, 307, 308, 411, and 413 are required.

THE GRADUATE PHASE

The following group of graduate courses must be taken by all students in the program:

*Accounting 505 - Accounting Analysis for Decision Making	3
Economics 510 - Managerial Economics	3
Finance 515 - Financial Management	3
Management 520 - Directed Research & Readings	3
Management 521 - Administrative Policy	3
Marketing 530 - Marketing Management	3
Quantitative Analysis 525 - Management Science	3
Electives**	12
TOTAL***	33

*The student with accounting as a specialty will take Accounting 508.

**A thesis is not required, but occasionally one may be approved for a student by the Advisory Committee. The thesis would reduce the elective hours from 12 to 6.

***At least 27 semester hours must be 500-level courses.

MBA SPECIALTIES

The Business Administration Curriculum leading to the MBA degree is administrative or management oriented and is characterized by breadth of course-field requirements both in the foundation and graduate phase. It does not require and, in fact, does not permit a major in any particular field. It is an interdisciplinary and interdepartmental degree program offered by the Graduate Division and the several academic departments of the College of Administration and Business.

This interdisciplinary characteristic is desirable for future administrators because their work requires some knowledge of many facets of administrative activities. The degree has become a prestigious one in the administrative circles of business, governmental, educational and other organizations.

However, many students desire a modest concentration in one area and the 12 semester hours of electives permit this to be done. In such cases the area of moderate concentration is called a "specialty" to distinguish it from the normal "major" as the term is used in master-of-science or master-of-arts degree programs.

For the convenience of both students and advisors, a group of suggested specialties are given below. If a student desires to take an extra course or two in order to further strengthen his or her specialty, this may be done but no such courses may be substituted for the required courses listed in the curriculum.

GENERAL: The 12 elective hours are "open" for those students who desire no specialty. For these students the elective hours will be chosen with the approval of their advisory committee.

ACCOUNTING: The 12 semester hours will include Accounting 507, 513, 517, 521.

BUSINESS EDUCATION: The 12 semester hours will include Education 525, Education 533, and Education 548 or 549, or both.

ECONOMICS: The 12 elective hours will include 12 hours approved by the Advisory Committee.

FINANCE: The 12 semester hours will include Finance 516, 517, 525, and one approved finance elective.

MANAGEMENT: The 12 semester hours will be chosen from Management 537, 539, 544, 545, 546, 547 and 571.

MARKETING: The 12 semester hours will be composed of courses approved by the Advisory Committee.

QUANTITATIVE ANALYSIS: The 12 semester hours will include Quantitative Analysis 522, 523, 535, and 540 or 541.

ADMISSION TO MBA PROGRAM

Any person who holds a bachelor's degree, or equivalent, from an accredited college or university will be considered for admission regardless of the undergraduate field of study. An applicant for admission should understand that graduate study is not simply an extension of undergraduate work. Graduate study operates at a definitely higher level, demands scholarship of a high order, and places more emphasis on research and student responsibility.

Applicants must supply a score on the Graduate Management Admission Test (GMAT). Admission to the MBA program is normally based on the combination of an applicant's test score and previous academic record. Assessment of graduate potential is judgmental, and the MBA Admissions Committee grants admission only to those individuals who can demonstrate high accomplishment and/or future promise of success. Conditional admission will apply at the discretion of the Admissions Committee according to the regulations of the Graduate School.

Applicants may arrange to take the GMAT by writing and making applications to: Graduate Management Admission Test, Educational Testing Service, P. O. Box 966, Princeton, N.J. 08540. Applications to take the GMAT may be obtained from the Counseling Center, The Graduate Office, or Director of Graduate Studies office in the College of Administration and Business. In making application, request that a copy of the score on the test be sent to College of Administration & Business, Louisiana Tech University, Ruston, LA 71272.

THE MASTER OF PROFESSIONAL ACCOUNTANCY PROGRAM

The Master of Professional Accountancy (MPA) program is designed to train individuals for accounting careers with a minimum of on-the-job experience, to prepare graduates for entrance examinations into the profession, and to provide the background necessary for holding responsible accounting and/or management positions. Students may be formally admitted to the graduate phase of the MPA program at the completion of their fourth year of undergraduate study regardless of whether or not a bachelors degree has been earned.

The MPA program is a five-year curriculum. The first two years are pre-professional and the last three are professional with the fifth year being graduate-level training. Course requirements in the undergraduate phase of the program must be met either prior to or at the graduate phase (year 5). Transcripts of students entering the program at the graduate level are evaluated and proper courses prescribed to satisfy the degree requirements. The undergraduate phase of the MPA program is given in the accounting section of the undergraduate portion of this bulletin.

The normal graduate phase of the MPA program is given below. The graduate phase may normally be completed in one year by accounting undergraduates who have performed satisfactorily in appropriate preparatory work.

Year 5

Accounting 506-Seminar in Financial Accounting OR	
Accounting 507-Contemporary Accounting Theory.....3	
Accounting 508-Advanced Accounting	
Analysis & Controls.....3	
Accounting 517-EDP in Accounting.....3	
Accounting 521-Cases & Probs. in Income Taxes.....3	
Accounting 541-Accounting Analysis.....3	
Accounting Electives.....6	
Economics 510-Managerial Economics.....3	
Finance 515-Financial Management.....3	
Management 521-Administrative Policy.....3	
Quan. Anal. 525-Management Science.....3	

33*

*Total must include at least 15 hours of 500-level accounting taken at Louisiana Tech.

ADMISSION

Admission to the graduate phase of the MPA program is based upon the combination of an applicant's academic record and score on the Graduate Management Admissions Test. Students may enter the program any quarter, and each individual has a major advisor to help plan his/her program. For information concerning admission to the program prior to completion of four years of undergraduate study, contact either the Director of the School of Professional Accountancy or the Director of the Undergraduate Division, College of Administration and Business, Louisiana Tech University, Ruston, LA 71272.

DOCTOR OF BUSINESS ADMINISTRATION OBJECTIVES OF THE D.B.A

The Doctor of Business Administration degree is a professional degree at the highest level of formal study in business administration. It is intended to develop the breadth and depth of comprehension, the command of research methodology, and the understanding of related disciplines required for careers in university teaching and research, or for high-level professional and administrative positions in business, government, education, or other organizations. The Doctor of Business Administration degree is a broad, interdisciplinary

degree. The D.B.A. candidate must expect to exhibit or develop a high level of competence and skills of individual inquiry and original research which characterize the doctorate. He/she will work under the close supervision of a major professor and an Advisory Committee.

FIELD AND RELATED REQUIREMENTS

The Doctor of Business Administration degree program requires a knowledge to be developed in three subject fields chosen from the following areas: Accounting, Business Economics, Business Education, Finance, Management, Marketing, and Quantitative Analysis. Also, a Research Tool (Economics and Quantitative Analysis) is required for all students. Regardless of the specific fields used by the D.B.A. student, he or she must normally show credit for at least one course for graduate credit in each of these: Accounting, Finance, Marketing, and Administrative Policy. In addition, he or she must normally show either graduate credit or undergraduate credit in at least one course in each of the following: management of human resources (organizational behavior), and production or industrial management. There is no requirement of a foreign language for the D.B.A. degree.

ADMISSION TO THE D.B.A. PROGRAM

To qualify to be considered for admission to the D.B.A. program, applicants must first have either already been admitted to graduate study in the College of Administration and Business or must meet the graduate admissions requirements of the Graduate School and the College and the doctoral admissions requirements of the Graduate School. If these requirements have been or can be met the application will be reviewed by a doctoral admissions committee to determine their personal characteristics, their research interest and capability, their motivation and perseverance, and their promise of success in high-level advanced study. The following requirements must also be met by applicants:

The academic record and score on the Graduate Management Admissions Test (GMAT) must demonstrate sufficient promise to indicate that they are qualified to perform successfully in the D.B.A. program. More emphasis will be placed on applicants' graduate record if they have already earned the masters degree than their undergraduate record.

Steps in applying for admission and in obtaining an admission decision are:

1. Arrange to take the Graduate Management Admission Test by writing: Graduate Management Admission Test, Educational Testing Service, P.O. Box 966, Princeton, N.J. 08540. Request that your test score be sent, after the examination is taken, to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, La. 71272.
2. For an application for admission form write to: Director of Admissions, Louisiana Tech University, Ruston, La. 71272. Return the filled-in application to this same address.
3. Request all colleges and universities attended at any time in the past to send official transcripts to the address in No. 2 above.
4. Request three persons who know your qualifications for doctoral study to serve as references. Ask them to mail their letters of recommendation directly to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, La. 71272. These letters should be submitted before or by the time the application is made.
5. When the above four steps have been completed, an invitation may be extended to you to come to the Campus for an Oral Admissions Examination. The admission decision will be made by the D.B.A. Admissions Committee after this

examination, but all of your admission credentials will be used in making this decision.

HOURS REQUIRED AND GENERAL EXAMINATIONS FOR THE D.B.A. PROGRAM

A minimum of 60 semester credit hours of graduate course work is required beyond the bachelors degree of which a minimum of 30 credit hours, exclusive of credit for dissertation research, must be beyond the masters course or their equivalent. The Advisory Committee will decide the number of credit hours which a student must take to provide the necessary strength in their field.

Upon completion of the course requirements in each field, a written field examination will be scheduled, and after all field examinations have been passed and other requirements met, the student will be given an oral examination which will complete the general examinations and qualify the student for the Certificate of Candidacy. After the completion of the dissertation, there will be administered a final oral examination in defense of the dissertation. All examinations are to be taken on the main campus under the direct supervision of appropriate faculty members.

DISSERTATION

Credit and progress in the dissertation will be provided by registering in Administration and Business 590 until 30 hours

of credit are earned. Grades of S and I will be given for each 3 hours of credit pursued. There will be a final oral examination after the dissertation is completed.

RESIDENCE REQUIREMENTS

A minimum of three consecutive quarters and a minimum of 24 semester credits, exclusive of research and dissertation credit, beyond the masters degree or its equivalent are required to be taken on the Louisiana Tech campus. The student's Advisory Committee may specify additional residential course work beyond the minimum of 24 credit hours.

CANDIDACY AND TIME LIMITATION

After the student has successfully passed his or her general examination he or she will be admitted to candidacy. The student must complete the dissertation and pass the final oral examination within a maximum of five calendar years after being admitted to candidacy. The final oral examination must be completed successfully at least two weeks prior to the date the degree is expected to be received.

ADDITIONAL INFORMATION

Request additional information from: Director of Graduate Division, College of Administration and Business, Louisiana Tech University, Ruston, Louisiana 71272. Telephone (318) 257-4528.

GRADUATE PROGRAMS

College of Arts and Sciences

OFFICERS OF INSTRUCTION

PAUL J. PENNINGTON, Dean

PATTERSON B. MOSELEY, Associate Dean and Director of Research

KENNETH W. REA, Director of Graduate Studies

JOSEPH W. STROTHER, Director, School of Art and Architecture

JOHN C. TRISLER, Head, Department of Chemistry

ROBERT C. SNYDER, Head, Department of English

WILLIAM Y. THOMPSON, Head, Department of History

BILLY J. ATTEBERY, Head, Department of Mathematics and Statistics

WILLIAM H. BRUMAGE, Head, Department of Physics

GUY D. LEAKE, Jr., Head, Department of Speech

ADMISSION

In addition to the general admission requirements for the Graduate School, all students must submit GRE scores prior to admission to a graduate program. In exceptional cases, time will be extended to the next testing date, after which a student is subject to another review by the Admissions Committee. Scores will be used as one criterion of evaluating a student by the Admissions Committee.

GRADUATE CURRICULA

The College of Arts and Sciences offers the degree of Master of Arts in the fields of English, history, music, and speech. The degree of Master of Fine Arts is offered in art.

The degree of Master of Science is offered in the fields of chemistry, mathematics, and physics. The Master of Science degree with an option in clinical chemistry is offered as a joint venture between the department of chemistry and the Division of Allied Health.

DIVISION OF RESEARCH

The Division of Research in the College of Arts and Sciences realizes that graduate and undergraduate research are an integral part of the College. Their value is to stimulate both the faculty and the students to achieve a higher degree of knowledge and a desire to contribute this knowledge to their particular fields and related fields of study.

The purpose of a university is instruction, research, and public service. The research division is designed to carry out the second responsibility of these important phases of our educational program.

The main sources of funds that are available for research are obtained from Federal and State government agencies, private foundations, and industry. The Division is also designed to provide help and information to those interested in securing funds from these sources.

SCHOOL OF ART AND ARCHITECTURE

The Master of Fine Arts degree is offered by the Art Department in the School of Art and Architecture and is designed for those interested in the creative aspects of the arts. Work toward the Master of Fine Arts degree may be undertaken in four areas:

- (1) Studio (Stu.)
- (2) Graphic Design (G.D.)
- (3) Interior Design (I.D.)
- (4) Photography (Photo.)

MASTER OF FINE ARTS

In addition to meeting the general admission requirements for the Graduate School, an applicant must submit a slide portfolio which demonstrates a sufficient undergraduate art background. A Bachelor of Fine Arts degree is the best preparation. However, students who do not possess this background are not discouraged from applying, but in general must expect some undergraduate background work or additional graduate level work in order to pursue their graduate program effectively.

The candidate for the Master of Fine Arts must complete a minimum of 60 graduate credit hours. Additional course work beyond the 60 hour minimum may be required. A graduate committee, appointed for each student, shall review the qualifications of the student and set forth the courses required for the degree. A maximum of 27 credit hours is eligible for transfer from another institution, contingent upon Graduate Committee review and approval. A candidate's status is subject to review at any time. At the conclusion of graduate study, the candidate is expected to present a one-person exhibition, or similar demonstration of his/her accomplishments, which is accompanied by a written and visual record.

DEPARTMENT OF CHEMISTRY

Research specialties of the Chemistry Department are as follows: the mechanisms of organic reaction, the chemical kinetics of organic reactions, the chemistry of natural products, rosin chemistry, coordination compounds, thermodynamics of solutions, molecular spectroscopy, extraction compounds of metal analysis, and blood lipid chemistry.

MASTER OF SCIENCE WITH A MAJOR IN CHEMISTRY

In addition to the Graduate School admission requirements, an applicant must have earned college credit for courses as follows: one year each of general chemistry, quantitative analysis, organic chemistry, physical chemistry, and physics; mathematics through calculus, both differential and integral; and organic qualitative analysis.

The candidate for the master's degree must complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduate students only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis. A written examination will be taken in the major field and in other fields if the student's advisory committee requires it.

MASTER OF SCIENCE WITH AN OPTION IN CLINICAL CHEMISTRY

Candidates who hold a baccalaureate degree from an accredited college in medical technology, chemistry, or in an equivalent field are eligible for this program.

Candidates are required to complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduates only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis.

A graduate committee, appointed for each student, shall review the qualifications of the candidate and set forth the courses required for the Master of Science degree. This committee may also require deficiency courses to be taken without graduate credit upon the basis of each student's transcript.

DEPARTMENT OF ENGLISH

The graduate program in English is designed to be thorough, comprehensive, and culturally broad. Graduates of the program are qualified to continue study toward the doctorate degree and to teach English at the college level.

MASTER OF ARTS WITH A MAJOR IN ENGLISH

In addition to the Graduate School admission requirements, an applicant must have the bachelor's degree from an accredited college, including a minimum of 24 hours of English. At least 12 of these 24 hours must be of junior or senior level.

The candidate for the degree of Master of Arts with a major in English must demonstrate proficiency in the use of at least one modern foreign language—French, German, or Spanish.

The candidate for the degree of Master of Arts with a major in English will follow one of two plans. Under Plan A he must complete a minimum of 30 hours of graduate credit in English, consisting of courses numbered 400 (for graduates and advanced undergraduates) and courses numbered 500 (for graduate students only). Six of the 30 hours credit must be earned in A & S 551, Research and Thesis.

Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 33 hours of graduate credit in English, 15 hours of which must be 500 level courses. The student must also successfully complete written comprehensive examinations in four areas of English or American literature.

All English courses numbered 400 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in English.

DEPARTMENT OF HISTORY

While course work is offered in many areas of history, the student will generally specialize in some phase of American, European, or Asian history for his/her research assignment.

In addition to providing cultural enrichment, the program prepares a student for further study toward the doctorate degree as well as teaching at the college level.

MASTER OF ARTS WITH A MAJOR IN HISTORY

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree from an accredited institution, a grade point average of 2.5 or higher on all work pursued, and 21 hours in history. On the recommendation of the head of the History Department, an exception to the 2.5 grade point average can be made in the case of an applicant who has achieved a 3.0 grade point average in his undergraduate history courses.

A student wishing to pursue the Master of Arts in history may choose between two programs of study:

Plan A: This plan is recommended for the student who will continue graduate work beyond the M.A. This student must complete 30 hours of graduate credit in history, 6 hours of which will be given for the completion of a thesis. The thesis course is Arts and Sciences 551, Thesis Writing and Research (3 semester hours credit), which may be repeated once for credit. Nine of the remaining 24 hours must be in 500 level courses open only to graduate students. A student following Plan A must demonstrate proficiency in one foreign language.

Plan B: This plan is designed for the student who considers the M.A. as the terminal degree. This student must complete 33 hours of graduate credit in history. Eighteen of the 33 hours must be in 500 level courses open only to graduate students. The student will not write a thesis but must pass a written examination covering his/her major field of interest. No foreign language proficiency is required for the student following Plan B.

Every candidate for the M.A. must pass an oral examination covering his entire program.

All history courses numbered 300 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in history. Six hours of approved course work can be taken outside the Department.

DEPARTMENT OF MATHEMATICS AND STATISTICS

The Mathematics and Statistics Department offers indepth studies in Algebra, Analysis, Differential Equations, Probability and Statistics, and Applied Mathematics for the prospective researcher, teacher, or applied mathematician.

MASTER OF SCIENCE WITH A MAJOR IN MATHEMATICS

In addition to the university requirements for admission, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in mathematics of not less than 30 semester hours. By the end of the first quarter of enrollment he is to choose one area from applied mathematics, pure mathematics, or statistics as his major area of interest. An advisory committee that reflects the student's major area of interest will then be appointed.

Each candidate for the M.S. degree will be required to have credit in the following Louisiana Tech University courses or their equivalent at another college or university: Math 405, Math 414, Math 480, Statistics 418.

In addition, each candidate for the M.S. degree must satisfy the conditions in one of the following two plans:

PLAN A: Thirty semester hours of graduate credit must be earned. A minimum of 24 semester hours, 3 of which are to be for an acceptable thesis, must be earned in the Department of Mathematics and Statistics. At least 9 semester hours excluding thesis credit must be in 500 level courses in the Department of Mathematics and Statistics. Up to 6

semester hours of graduate courses may be chosen from a related field if approved by the advisory committee.

PLAN B: Thirty-three semester hours of graduate credit must be earned. A minimum of 27 semester hours, 3 of which are to be for an acceptable project, must be in the Department of Mathematics and Statistics. At least 9 hours excluding credit for a project must be in 500 level courses in the Department of Mathematics and Statistics. Up to 6 semester hours may be chosen from a related field if approved by the advisory committee. The project will be a study in some area of mathematics or statistics not normally covered in a regularly scheduled course or it will be a solution to a problem that requires mathematics of statistics at the graduate level. A project must be approved by the student's advisory committee before credit is received.

DEPARTMENT OF PHYSICS

The Department of Physics offers instruction and opportunities for research in the areas of solid state physics, atomic and molecular physics, plasma physics, low temperature physics and many-body theory. The completion of the master's program will prepare the student for further work toward the doctorate degree as well as for employment in government and industry.

MASTER OF SCIENCE WITH A MAJOR IN PHYSICS

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in physics.

The minimum residence requirement for the master's degree with a major in physics is three quarters.

The candidate for the master's degree must complete a minimum of 24 semester hours of graduate credit in physics plus Mathematics 502 and Mathematics 544, or other courses acceptable to his/her thesis committee. Six of the required 30 hours must be earned by taking Arts and Sciences 551, Research and Thesis, and by completing an acceptable master's thesis.

During the first quarter of residence the student must take a preliminary oral examination over undergraduate physics. In addition, the student must pass an oral examination on his/her thesis.

DEPARTMENT OF SPEECH

The graduate program in speech provides training and experience in the following areas: speech communication; speech-language pathology and audiology; theatre arts. The student may choose a program of study which allows concentration in any one of the above areas.

MASTER OF ARTS WITH A MAJOR IN SPEECH, SPEECH PATHOLOGY AND AUDIOLOGY

In addition to the admission requirements of the Graduate School, the applicant is expected to have earned 24 semester hours of credit in speech which must be approved by the Department of Speech. Applicants who do not have 24 semester hours of credit in speech are expected to satisfy this requirement in the initial stages of their graduate program.

The graduate student in speech will follow one of two plans of study. Under Plan A he must complete a minimum of 30 hours of graduate credit in speech, speech pathology and audiology or 24 hours in speech, speech pathology and audiology and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates), courses numbered 500 (for graduate students only), and other courses which are approved by his/her major professor and by the head of the Department of Speech. Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

In addition to the requirements stated in the preceding paragraph, six hours of the total must be earned by taking for credit A & S 551: Research and Thesis and by completing an acceptable thesis. A written and oral examination on all course work is required.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 33 hours of graduate credit in speech, speech pathology and audiology.

All graduate students in speech (speech pathology and audiology) must demonstrate acceptable proficiency in research and reporting. Such proficiency must be demonstrated in Speech 500: Introduction to Research.

All speech courses numbered 400 or above in the current catalog of Louisiana Tech are acceptable for credit toward the degree of Master of Arts with a major in speech.

Graduate credit not to exceed six hours may be earned in courses numbered in the 400 and 500 series in fields related to speech. Such credit must be approved by the Department of Speech.

The amount of work which may be taken on a part-time basis in speech will be limited to 12 semester hours. After completion of 12 hours on a part-time basis, a student may continue in speech only under full-time registration. Not all courses offered by the department will be open to part-time students. Only full-time students will be eligible for clinical practicum.

Note: All students in speech pathology and audiology are required to meet the academic, clinical experience and examination requirements set by the American Speech-Language-Hearing Association for the Certificate of Clinical Competence in Speech Pathology or Audiology prior to the completion of the master's degree.

GRADUATE PROGRAMS

College of Education

OFFICERS OF INSTRUCTION

J. W. ANDREWS, Dean

CHARLES L. FOXWORTH, Director, Graduate Studies
DONALD R. NELSON, Associate Dean of Education, Area Coordinator for Teacher Education

JAMES M. WILLIAMS, Director of Division of Education Research and Services; Area Coordinator for Behavioral Sciences

JAMES B. AKERS, Area Coordinator for Health and Physical Education

From its founding in 1894, one of the purposes of Louisiana Tech University has been the preparation of elementary and secondary teachers. Teacher education has continued to maintain an increasingly important position in the University. More specific objectives are:

1. To provide at the graduate level education experiences which will develop the individual's knowledge in both breadth and depth.
2. To provide consultation services to in-service personnel whereby they may improve existing instructional programs.
3. To maintain teacher education programs which, through reading, research, and professional meetings, embody the best of current educational ideas and practices.

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana State Board of Education, is accredited by the Southern Association of Colleges and Schools as an individual unit, it is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. Degree programs offered by the College of Education at the undergraduate and masters levels are accredited by the National Council for Accreditation of Teacher Education.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICES

The Division of Educational Research and Services was officially created in 1970. All faculty members in the College of Education are staff members of the Division. The purpose of the Division is to encourage research, writing, and demonstration projects by the faculty of the College and to assist in identifying appropriate avenues for the dissemination of the results.

The College of Education research committee is chosen from the academic department and division chairmen, with the director of the Division of Research and Publications serving as chairman. The committee is charged with establishing general policies and procedures for the Division and is responsible to the Dean of the College of Education.

Financial support for the activities of this Division is derived through the regular operating budget and from special grants of local school districts, state and federal agencies.

DEGREES CONFERRED

The College of Education offers programs leading to the Master of Arts, the Master of Science, and the Specialist degrees in Education.

THE MASTER'S DEGREE PROGRAM

Graduate work for the Master of Arts degree is offered in: art education, counseling and guidance, elementary education, English education, human relations and supervision, music education, reading, social studies education, special education, speech education, and speech pathology and audiology education.

Graduate work for the Master of Science degree is offered in: business education, health and physical education, mathematics education, and science education (biology, chemistry, or physics).

Graduate students in the College of Education, along with graduate students in the other academic colleges, are eligible to apply and compete for University Graduate Assistantship positions. Inquiries concerning these assistantships should be directed to the Graduate Office.

ADMISSION REQUIREMENTS

In addition to the general admission requirements of the Graduate School, a student seeking a master's degree in any of the teaching areas must hold a teacher's certificate for the area. If students do not have sufficient preparation to pursue graduate courses in their areas of certification, they will be required to take whatever courses are deemed necessary to remove the deficiency. These courses will not be considered as part of the student's graduate program.

Students desiring to enter a master's program in the College of Education are required to submit to the Director of Graduate Studies a satisfactory score on the Miller Analogies Test. Those students qualifying for unconditional admission may be granted provisional admission and allowed to submit the MAT score during the first quarter of study. Students seeking conditional admission must submit their score before an admission decision can be made. Arrangements for taking this exam may be made with the Counseling Center, Keeny Hall 322 on the Tech Campus, or with other testing centers.

ELEMENTARY EDUCATION

The candidate seeking a Master of Arts degree will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. A minimum of 12 semester hours in professional courses and a minimum of 12 semester hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541, Education 512 or 518, and 3 semester hours in teaching skills in communication (Education 502 or Education 503) are required. Six semester hours in the teaching of content subjects are also required. This requirement will include two of the following three courses: Education 501, Education 504, and Education 509. A maximum of 3 semester hours in special education and/or principles of guidance may be applied to the candidate's program for the degree.

In the content area, a minimum of 3 semester hours from two of the following departments is required: (1) English or library science, (2) science, (3) social studies, and (4) math, Special Education or psychology. Students without undergraduate credit in contemporary math will include 3

hours of contemporary math as a deficiency in the graduate plan of study.

SECONDARY EDUCATION

The candidate seeking a master's degree in education with an academic major in a subject field will be required to earn a minimum of 33 semester hours which may include 6 hours credit for a thesis. This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

The candidate will be required to select with the approval of his Advisory Committee 12 to 18 semester hours of professional education courses. In the professional area, Education 541, Educational Research, and 3 semester hours chosen from Education 512, Philosophy of Education, and Education 518, History of American Education, are required.

The 15 to 21 hours of work in the academic field should be chosen in view of the student's background of preparation as well as plans for future graduate work.

In the College of Education, students pursuing the degree of Master of Arts or Master of Science may elect to write either in the professional or the content field. If the thesis is to be written in the professional field, credit must be earned in Education 551, Research and Thesis. If it is to be written in the content field, credit must be earned by taking appropriate thesis courses, as Arts and Sciences 551, etc.

COUNSELING

The Counselor Education Program is designed to prepare counselors for counseling and personnel positions in educational institutions and other service agencies. The program is designed to provide all enrollees with a basic preparation in counseling psychology with various elective options offered to prepare counselors for particular institutional settings, e.g., educational, employment, vocational rehabilitation, and community service agencies.

Three programs are offered in this field: certification as an elementary school counselor, certification as a secondary school counselor, and a general counseling program. Certification as an elementary or secondary school counselor requires permanent teacher certification prior to admission. The general counseling program does not require a permanent teacher's certificate for admission.

The program of study includes 21 to 24 semester hours of counseling and guidance courses, 3 semester hours in research methodology, and an additional 6 to 9 semester hours to be selected from approved psychology and counseling courses. This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

Candidates for a degree in counseling must provide evidence by college transcripts or examination of a broad educational background including the behavioral and social sciences and the humanities. Students enrolling with insufficient preparation to meet these requirements will be expected to regard as deficiencies all courses needed to meet the standard.

Students interested in writing a thesis should discuss this with their advisor prior to their enrollment in graduate courses.

SPECIAL EDUCATION

The candidate seeking a Master of Arts degree in special education will be required to earn a minimum of 33 semester hours which may include a thesis. The master's degree program presumes previous special education certification and those candidates not so certified will be required to meet certification requirements in addition to degree requirements.

The program is designed to be generic rather than categorical. Some deviation from the standard program may be made according to the individual's experience and objectives with consent of the special education program chairman and approval of the candidate's advisory committee. Students may elect to specialize in administration and supervision of Special Education, master teacher, gifted and talented, or assessment teacher. All courses offered may be applied toward the state certification. This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

READING

The candidate seeking a Master of Arts degree with a major in reading will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. Twenty-one semester hours in professional courses and 12 hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541, Education 534, Education 535, and Education 536 are required of all candidates. A minimum of one course must be selected from Education 403 or Education 503. The remaining 6 hours in professional courses are electives.

In the content area, 3 semester hours must be taken in two of the following content areas: English or speech, library science, social studies, and mathematics or science. The remaining 6 hours of content courses may be selected from any of the above areas.

HUMAN RELATIONS AND SUPERVISION

Persons trained in Human Relations and Supervision frequently find employment in business, industry and government. Many positions in these settings require expertise in 'people skills' and organizational psychology.

The candidate seeking a Master of Arts degree with a major in human relations and supervision will be required to earn a minimum of 33 semester hours.

The candidate will be required to take these courses: Psychology 300, Psychology 490, Psychology 491, Psychology 524, and Counseling 508. The remaining 18 hours will be selected from counseling, psychology, management, and economics courses with the approval of his/her advisory committee. No more than 8 semester hours may be taken in business. This work will consist of at least 18 hours credit from academic and/or professional courses designed exclusively for graduate credit.

SPECIALIST IN EDUCATION PROGRAM

The degree of Specialist in Education will be awarded as the appropriate recognition of achievement as evidenced by:

1. Satisfactory completion of a program of graduate study of approximately two academic years.
2. Satisfactory performance on an oral and/or written examination designed to reveal the student's knowledge of his or her field of specialization.
3. Satisfactory completion of a research project.

REQUIREMENTS FOR ADMISSION

In addition to the regular College of Education requirements for admission to the Graduate School, the applicant must meet the following standards:

1. Hold a master's degree or its equivalent with adequate preparation in the field of specialization, as determined by the graduate's Advisory Committee.

2. Submit a satisfactory score on the Graduate Record Examination aptitude test or the Miller Analogies Test during the first quarter of study.

3. Be approved by a graduate faculty committee.

4. Demonstrate proficiency in research methodology.

PLAN OF STUDY

The student's major advisor and Advisory Committee will design a plan of study for the student. Deficiencies in the background of preparation in the area of specialization will be included in the plan of study, but will not be counted in the total number of hours required for the completion of the specialist program. Any graduate student who has not submitted a Plan of Study by the end of the first quarter in the program will not be allowed to register as a graduate student until a Plan of Study has been submitted.

AREAS OF STUDY AND COURSE REQUIREMENTS

The following areas of specialization are available within the Specialist in Education program; counseling and reading.

The Specialist in Education with a major in Counseling must include the following courses on the student's plan of study: Counseling 518, Techniques of Counseling; Counseling 519, Advanced Theories of Counseling; Counseling 522, Fieldwork in Counseling; Psychology 511, Advanced Educational Psychology; Education 561, Research Design and Analysis; and Education 580, Specialist Research and Thesis. An additional 12 semester hours in counseling and psychology will be selected by the student's Advisory Committee.

The course requirements for the Specialist in Education with a major in Reading must include in his plan of study: Education 537-Seminar, Problems in Reading; Education 538-Supervision and Curriculum Development in Reading; Education 539-Advanced Laboratory Practicum in Reading; Education 564-The Reading Process; Psychology 300-Elementary Statistical Methods in the Social Sciences or Education 542-Statistical Methods in Education; Education 512-Philosophy of Education or Education 518-History of American Education; Education 561-Research Design and Analysis, and Education 580-Specialist Research and Thesis. The

remaining 18 semester hours will be selected by the Advisory Committee to meet the standards of the International Reading Association.

AMOUNT AND QUALITY OF WORK

The student will be required to complete a minimum of 30 semester hours of graduate work above the master's degree with a 3.0 average, with no grade below B. This work will consist of at least 15 semester hours credit from content and/or professional courses designed exclusively for graduate credit. A course in which the grade C is made will not count in the required number of hours, but will be included for the purpose of computing the grade-point average. A student with grades of C or less in two courses will be dropped. Once a student has been dropped from the Specialist program, he is not eligible for re-admission.

A maximum of 9 semester hours of graduate work beyond the master's degree, earned prior to admission to the specialist program, may be included in the 30 semester hours of required work. A maximum of 6 semester hours of transfer work and 9 hours of extension credit may be applied toward the specialist degree.

RESIDENCE REQUIREMENTS AND TIME LIMITATION

The minimum residence requirement is two quarters of full-time study beyond the master's degree.

All graduate work included in the plan of study of the Education Specialist degree must be completed within six calendar years.

RESEARCH REPORT AND ORAL EXAMINATION

The candidate must complete an independent research project approved by the Advisory Committee and write a report concerning this research. The report must be defended during the final oral examination to be administered by the Advisory Committee, during the quarter in which the student completes degree requirements.

GRADUATE PROGRAMS

College of Engineering

OFFICERS OF INSTRUCTION

JACK THIGPEN, Dean
H. L. HENRY, Associate Dean
BOBBY E. PRICE, Director of Engineering Graduate Studies
RANDALL F. BARRON, Director of Engineering Research
JACKIE W. D. ROBBINS, Head, Department of Agricultural Engineering
DUANE F. BRULEY, Head, Department of Biomedical Engineering
JAMES W. MALONE, Head, Department of Chemical Engineering
JOE R. WILSON, Head, Department of Civil Engineering
MILTON R. JOHNSON, Head, Department of Electrical Engineering
LEO A. HERRMANN, Head, Department of Geosciences
H. L. HENRY, Acting Head, Department of Industrial Engineering and Computer Science
ROBERT D. HOLSTEAD, Head, Department of Mechanical Engineering
ROBERT M. CARUTHERS, Head, Department of Petroleum Engineering
CHARLES N. SCHROEDER, Coordinator, Computer Science

The College of Engineering offers the Master of Science degree with majors (specializations) available in the Departments of Engineering, in Computer Science, in Geology and in Operations Research. An interdisciplinary, practice-oriented Doctor of Engineering degree is offered with emphasis on the functional areas—Energy, Environment, Electronics and Computers, or Human Accommodation Design. A Doctor of Philosophy degree is offered only in the Department of Biomedical Engineering.

ACCREDITATION

The undergraduate engineering curricula are professionally accredited by the Accreditation Board for Engineering and Technology (formerly ECPD).

FINANCIAL ASSISTANCE

Financial assistance is available to a limited number of qualified graduate students in the College of Engineering. This assistance includes graduate assistantships of \$4,000 at the master's level and teaching assistantships of \$5,800 at the doctoral level. Out-of-state tuition is waived for both types of assistantships.

Also available are research fellowships on funded research contracts sponsored by governmental agencies and private industry. A third type of financial assistance available is unrestricted fellowships by private industry. All inquiries concerning financial assistance should be directed to the head of the department in which the applicant wishes to major or to the Director of Engineering Graduate Studies. University assistantships with stipends as indicated above are also open to engineering graduate students. Inquiries concerning these assistantships should be directed to either the Director of Engineering Graduate Studies or to the Graduate School of the University. The graduate student who holds an assistantship is expected to carry a reduced classwork load which will vary depending on his/her scholastic record and amount of work required by the assistantship. For a student on a full-

time (20 hours of work per week) assistantship, the maximum classwork load shall not exceed seven hours of graduate credit, exclusive of Research and Thesis or Dissertation. In exceptional circumstances this limit may be relaxed to the nine hour total specified by the University catalog, subject to recommendation of the student's advisor and approval by the department head and Dean of Engineering.

RESEARCH ACTIVITIES

The College of Engineering is a member of the Engineering Research Council of the American Society for Engineering Education. The Division of Engineering Research was created in 1953 in recognition of the importance of fundamental and applied research to the world of technology and to the professional development of a competent faculty. The purpose of the division is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The activities of the division are directed by the Research Coordinating Committee, composed of the Engineering Academic Department Heads with the Director of Engineering Research serving as chairman of the group. This committee is responsible to the Dean of the College of Engineering.

The financial support of research projects is derived from two primary sources: (a) the operating budget of the Division of Engineering Research and (b) sponsorship of a project by an interested outside agency.

The College of Engineering regards original research and scholarly publications as a vital part of engineering education. A research thesis is required of all masters students except those approved for non-thesis option, and a dissertation is required of all doctoral students. The student works in concert with his/her Advisory Committee to plan, execute, and publish this research. Areas of most active research effort would be: biomedical engineering, computers, communications, cryogenics, energy, environmental engineering, human factors, materials, microprocessors, operations research, photoelastic stress analysis, simulation, structures, systems engineering, thermodynamics, transportation and transport phenomena.

THE MASTER OF SCIENCE DEGREE THESIS OPTION

In order to pursue the Master of Science, a student must be accepted as a major in one of the Departments of Engineering or in the masters Program in either Computer Science, Geology or Operations Research. In addition to any required remedial course work not taken for graduate credit, the student will be required to complete a minimum of 30 hours for graduate credit, 6 hours of which will be earned in Engineering 551, Research and Thesis. By University requirements, a minimum of 15 hours must be earned in courses open only to graduate students. In the Computer Science program, at least 15 hours must be earned in Computer Science and at least 9 hours in an approved minor.

NON-THESIS OPTION

The thesis requirement meets the needs of most masters students in the College of Engineering, particularly those enrolled full time in a probably terminal masters degree

program. Non-thesis options are also available, particularly for those students whose experience in business, government, or industry, and whose maturity, accomplishments, and professional responsibilities are such that they would benefit more by additional formal course work than by the production of a thesis. In these cases, a minimum of 36 hours of graduate course work will be required. By University requirements, a minimum of 18 of these hours must be earned in courses open only to graduate students. To be accepted into a non-thesis option, the student must submit a written justification for approval describing the student's experience, accomplishments and professional responsibilities, including documents supporting previous report writing.

A non-thesis 36 hour program is available in both Computer Science and the Operations Research non-engineering Option of the Industrial Engineering major. In the Computer Science program at least 18 hours must be earned in Computer Science and at least 9 hours in an approved minor; a comprehensive examination covering particular Computer Science courses is required; and, a technical report is required with 3 hours credit given for enrolling in Computer Science 550, Special Problems.

In the Operations Research non-engineering Option; 21 hours must be earned in Industrial Engineering courses in Operations Research. A technical paper is required with 3 hours credit given for enrolling in Industrial Engineering 550C, Special Problems.

INDIVIDUAL REQUIREMENTS

The exercise of these options and the choice of courses will be proposed by the student and his/her Advisory Committee subject to review and approval (in order) by the major department head, the Director of Engineering Graduate Studies, the Dean of Engineering, and the Dean of the Graduate School and University Research. The transfer of graduate credit from another graduate institution, graduate credit by examination, graduate credit as a graduating senior, or other credit earned other than as a regularly enrolled graduate student in the College of Engineering at Louisiana Tech must meet all University standards and is also subject to approval as part of the Plan of Study. Each major department will set its own criteria for allowing graduate credit for any undergraduate courses. Courses taken for graduate credit while the student is registered in the non-degree unclassified category will not be applied to a degree program, without approval by the student's Advisory Committee.

ADMISSION TO THE MASTERS PROGRAM

For students desiring to major in Agricultural, Biomedical, Chemical, Civil, Electrical, Industrial, Mechanical or Petroleum Engineering, a baccalaureate degree with a major in the same engineering discipline from an ABET accredited institution is the best preparation. Students who do not possess this background are not discouraged from applying; but, in general, must expect some undergraduate non-graduate credit background work in order to pursue their graduate program effectively and successfully. Since the masters degree is generally accepted as a higher level of intellectual accomplishment than the baccalaureate degree, the student must expect his/her program to be structured accordingly. The student will be required to remove any deficiencies in mathematics, science, engineering and communication. In particular, students with a baccalaureate in mathematics or the physical sciences should expect remedial courses stressing engineering analysis and synthesis.

Students entering the masters program in Computer Science will be expected to satisfy the following background requirements: programming ability in an assembler language

and at least two high-level languages; satisfactory completion of courses in file processing, computer architecture, systems programming, discrete structures, and data structures; and mathematics through integral calculus. These requirements can be met in either of the following ways (or in combination): courses taken prior to admission; courses taken as remedial work for non-graduate credit after admission; proficiency examination(s) administered by the student's major advisor after admission; or, by documented evidence to major advisor and approved by major department head of equivalent knowledge gained through experience.

For students desiring to pursue the masters in Geology, a degree in Geology from an accredited institution is desirable. Appropriate remedial work will be required for students not possessing the appropriate background and/or specific course work.

For students wishing to apply for the Operations Research non-engineering Option in Industrial Engineering, a degree in either engineering, physical sciences, mathematics, business administration, economics, or computer science is required in addition to a minimum of 12 hours of calculus, 3 hours of applied statistics and satisfactory programming ability in Fortran IV. Applicants with the appropriate degree but without the specific minima will be required to remove these deficiencies.

Students desiring to enter any of the masters programs in the College of Engineering are required to submit to the Director of Engineering Graduate Studies a satisfactory score on the aptitude (verbal and quantitative) section of the Graduate Record Examination. The scores may be used in the graduate admission decision of the College of Engineering. Students pursuing course work in engineering for graduate credit but not toward a graduate degree program at Louisiana Tech University are not required to take the GRE.

THE DOCTOR OF ENGINEERING PROGRAM

The Doctor of Engineering is an interdisciplinary program with the objective of educating students for the broad, professional practice of engineering at a high level of knowledge. Engineering practice revolves around technical areas such as engineering, mathematics, statistics and computer applications as well as those areas associated with governmental regulations, legal documents, business organization, management and planning, and economic considerations.

The Doctor of Engineering program, with no departmental designation, focuses on the four functional areas—Energy, Environment, Electronics and Computers, and Human Accommodation Design. Each student working together with his/her Advisory Committee will develop a Plan of Study subject to approval, of a minimum of 90 hours of graduate work past the baccalaureate degree including the dissertation, to meet the needs of the student and to maintain the intent of the Doctor of Engineering program. A minimum of 36 hours of graduate coursework in addition to the dissertation will be taken at Louisiana Tech. The program of study will be structured to include:

1. A minimum of 18 hours in engineering core courses recommended for all students in the program.
2. A minimum of 18 hours in engineering specialty courses in one of the functional areas. A minimum of 18 hours in the chosen specialty must be taken at Louisiana Tech.
3. A minimum of 18 hours in supporting courses used to broaden the students background in such areas as management, accounting, statistics, mathematics and behavior analysis. A minimum of 12 hours must be taken in acceptable business courses.

4. A minimum of 18 hours (maximum of 24 hours) on a suitable dissertation involving engineering design, development or any other major category of engineering work relevant to current engineering practice. The dissertation should normally be completed in one calendar year.
5. Additional graduate coursework as specified by the Advisory Committee.
6. Any remedial work requested by either the committee recommending admission or the Advisory Committee after its review of the preliminary examination results.

The program contains a preliminary (diagnostic) examination, before or during the first quarter of admission to the doctoral program, a comprehensive examination over formal coursework and a defense of the dissertation. These examinations may be oral and/or written as determined by the student's Advisory Committee. A passing grade on the Engineer-In-Training Examination will be required prior to taking the comprehensive examination and the comprehensive examination must be completed prior to enrolling in Engineering 590-Research and Dissertation, unless an extension is granted by the Dean of Engineering for extenuating circumstances based on recommendations from the Chairman of the Advisory Committee and the Director of Engineering Graduate Studies. No foreign language is required in the Doctor of Engineering program.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM IN BIOMEDICAL ENGINEERING

In order to pursue the degree, a student must be accepted as a major in the Department of Biomedical Engineering. The program is a balance of intensive and extensive formal coursework as a foundation, a sequence of examinations which may be oral or written or both, and the production of a dissertation.

The program consists of a minimum of 60 hours credit in formal coursework, exclusive of research and dissertation credit, beyond the baccalaureate. Choice of acceptable graduate level courses, including choice and composition of major and minor areas, will be established by the Advisory Committee in concert with the doctoral student, subject to approval as part of the Plan of Study.

The typical program includes a minimum of 30 hours of major coursework (this may cross departmental lines) and 12 hours in mathematics. Individual interests, need, and the demands of the engineering profession, both present and anticipated future, will guide these decisions with flexibility as the keynote. Credit for the dissertation will range from 15 to 30 hours as guided by the Advisory Committee.

The schedule of examinations consists of a qualifying examination before or during the first quarter of admission to the doctoral program, a comprehensive examination at or near the completion of formal coursework, and a defense of

the dissertation. Prior to the comprehensive examination, the student must have met the French and German reading proficiency requirements of the Department of Foreign Languages. Substitution of an approved group of courses (6 hours minimum) in pure mathematics for French or a comprehensive knowledge of Russian for French and German, or other language options specific to an individual program, are permitted upon recommendation of the Advisory Committee, subject to approval as part of the Plan of Study.

ADMISSION TO THE DOCTORAL PROGRAMS

Prior to entering the Doctor of Engineering program a student must have either a Bachelor of Science degree from an ABET accredited engineering curriculum or a Master of Science in an approved engineering curriculum.

For students desiring to major in Biomedical Engineering, a baccalaureate degree with a major in an engineering discipline from an ABET accredited institution is the best preparation. Students who do not possess this background are not discouraged from applying, but, in general, must expect some amount of undergraduate remedial courses stressing engineering analysis and synthesis to prepare them for pursuit of their graduate program effectively and successfully.

Students entering either the Doctor of Engineering program or the Doctor of Philosophy program in Biomedical Engineering will be required to remove any deficiencies in mathematics, science, engineering, and communication. In addition, applicants to the Doctor of Engineering program will be required to remove any deficiencies in business.

Applicants are required to submit scores on both the aptitude and advanced engineering portions of the Graduate Record Examination and the names and complete addresses of three academic or professional references who will be contacted directly by the College of Engineering. Pending receipt of the GRE scores and letters of reference, the applicant may be accepted as a non-degree, unclassified student by recommendation of either the department head of the student's major or by the Director of Engineering Graduate Studies. The applicant will be granted either an unconditional admission or will be rejected after review of all application materials. Although not required, the applicant should possess a masters degree.

DESCRIPTION OF COURSES

The graduate student in Engineering will choose courses based on the Plan of Study. The 400 level courses are for undergraduate and graduate registration; the 500 level courses are for graduate student registration only. Credit for Research and Thesis or Research and Dissertation are listed as Engineering 551 and 590, respectively, rather than as a departmental listing.

GRADUATE PROGRAMS

College of Home Economics

OFFICERS OF INSTRUCTION

JEANNE M. GILLEY, Dean
NANCY M. TOLMAN, Director, Graduate Studies
and Research

Individuals with education beyond the bachelor's degree are in demand in the areas of dietetics, management, home economics education, fashion merchandising, child development and the broad general area of home economics. The graduate home economics curriculum leading to the Master of Science degree was established to meet this demand. Three options allow students to select the program best suited to individual professional objectives. The graduate students are given the opportunity to enhance their knowledge in the rapidly changing field of home economics and to develop an appreciation of the current research in their chosen areas of study.

ACCREDITATION

Graduate and undergraduate degree programs in home economics education are accredited by the National Council for Accreditation of Teacher Education, approved for certification by the Louisiana State Department of Education, and approved to receive federal vocational funds.

The College of Home Economics is an official member of the AHEA Agency Member Unit. The undergraduate programs are accredited by the American Home Economics Association and the American Dietetic Association.

The master's program in institution management has an optional experience component. This program has been approved as meeting the requirements for membership in the American Dietetic Association on an individual basis.

ADMISSION

In addition to the general admission requirements for the Graduate School, an applicant must have a bachelor's degree from an accredited college or university with a major in home economics or in a related field. If the major is in a related field, the need for supporting courses will be determined by the student's Advisory Committee.

An acceptable Miller Analogies Test score (minimum of 22) or Graduate Record Examination score (minimum of 650 for quantitative plus verbal), is required for all students. Preferably this score is submitted before or with the application for admission to graduate school; an individual seeking conditional admission must submit a score before admission. If not taken previously, unconditionally admitted students may take the Miller Analogies Test or the Graduate Record Examination during the first quarter of enrollment.

A test score will be used by the Advisory Committee as one criterion for evaluating the student's ability to undertake a graduate degree program. Students whose standards in oral and written communication are unacceptable may be asked to undertake courses to remedy the deficiency. In addition, at the discretion of a student's Advisory Committee, the student may be required to enroll for additional home economics courses where deficiencies exist.

FINANCIAL SUPPORT

A limited number of university wide graduate assistantships are available to students majoring in home economics as they are to other graduate students. Application is made directly to the Graduate Office.

Financial support awarded by the College of Home Economics includes graduate assistantships and scholarships. The number and amount of these awards are dependent upon the availability of funds. Application for a graduate home economics assistantship or scholarship is made to the Director of Graduate Studies, College of Home Economics.

The Helen Graham Loan fund is available for up to \$500.00 on a low interest rate basis.

Employment opportunities for graduate students include student work at current hourly rate and limited appointments for departmental duties. Further information may be obtained from the Dean of the College of Home Economics.

RESEARCH

Faculty members are available who are well qualified to supervise research problems within the limits of university facilities in fields of Food and Nutrition, Home Economics Education, Child Development, and Clothing-Textiles.

REQUIREMENTS FOR GRADUATION FOR ALL OPTIONS FOR THE MASTER OF SCIENCE DEGREE WITH A MAJOR IN HOME ECONOMICS

1. a. Thirty-six semester hours or b. Thirty semester hours which include credit in Home Economics 551, Research and Thesis.
2. A grade point average of B on all graduate work pursued.
3. A minimum of one-half of the hours in courses given exclusively for graduate credit.
4. Credit in Home Economics 504, Methodology in Home Economics Research.
5. Credit in Statistics 402, Introduction to Statistical Analysis.
6. A thesis or multi-quarter independent study is required for the Institution Management option and strongly recommended for other options.

OPTIONS FOR THE MASTER OF SCIENCE DEGREE:

The College of Home Economics has been given the authority to grant a Master of Science degree for the Home Economics curriculum in options: General Home Economics, Home Economics Education, and Institution Management. Within the first two mentioned options, the student should select an area of emphasis. The areas that have been defined include the following:

1. **General Home Economics Option**
 - A. Child Development and Family Relations Emphasis
 - B. Clothing Emphasis
 - C. Fashion Merchandising Emphasis
- II. **Home Economics Education Option**
 - A. Child Development and Family Relations Emphasis
 - B. Vocational Home Economics Education Emphasis

III. Institution Management Option

With the guidance of the Advisory Committee, each student will develop an individualized plan of study according to

the selected area of study. Recommended courses are listed in the Graduate Student Handbook for the College of Home Economics which is given to the student at the time of initial enrollment.

GRADUATE PROGRAMS

College of Life Sciences

OFFICERS OF INSTRUCTION

HAL B. BARKER, Dean
JOHN A. WRIGHT, Associate Dean
HAROLD G. HEDRICK, Director, Graduate Studies
JOHN L. MURAD, Director, Life Sciences Research
MARGARET H. PEASLEE, Head, Department of Zoology
DALLAS D. LUTES, Head, Department of Botany and Bacteriology

The demand for trained persons in all disciplines of agricultural and life sciences is increasing in public service and private industry. A graduate program to encourage and nurture expanded investigation in specific areas of interest has developed to meet this demand. The graduate program in the College of Life Sciences prepares the student to accept the challenges of worldwide problems and to successfully arrive at technological solutions based on the premise of the scientific approach to research.

The College of Life Sciences offers programs of study leading to the degree Master of Science in Life Sciences with emphasis in the academic areas of Botany, Microbiology and Zoology with two options: (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's plus 30 may also be obtained in Life Sciences.

DIVISION OF RESEARCH

The Division of Life Sciences Research is an integral part of the educational processes of this university. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality.

The Division is the administrative office for the coordination of all phases of research conducted by the various units within the College of Life Sciences. General policies and procedures governing the administration of the Division are formulated and governed by the Research Committee. The committee is chaired by the research director and is composed of an elected representative from each department within the College of Life Sciences and the Dean of the College.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contributions by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House projects are strongly encouraged through brief research proposals submitted to the Research Committee for consideration and funding.

ADMISSION

The Committee for Admissions to Graduate Studies in the College of Life Sciences requires the GRE scores on the Aptitude Tests of all applicants and the scores on one of the Advanced Tests, either biology or chemistry, depending on the applicant's area of interest. The grade point average on hours attempted, the trend in GPA on the last 30-60 hours, GPA of 2.75 on grades earned in the undergraduate science courses, personal recommendations, acceptable prerequisites for graduate study in chosen discipline, availability of

major advisor, and an interview are the main criteria used in evaluating an applicant for admission to Graduate Studies in the College of Life Sciences. The GRE scores provide a reference point to the Committee for Admissions for use as a comparison of the applicants to standardized national norms.

DEPARTMENT OF BOTANY AND BACTERIOLOGY

ADMISSION REQUIREMENTS

Students may pursue work leading to the Master of Science degree in Life Sciences with an emphasis in Botany and Microbiology, Thesis or Non Thesis Option. Students must meet the minimum admission requirements for the Graduate School. In addition, the minimum undergraduate training for the M.S. in Life Sciences with an emphasis in Botany and Microbiology is:

1. a basic course in general botany, general biology, microbiology, bacteriology or biological science
2. a basic course in each of the areas of anatomy or morphology, physiology, taxonomy, wildlife biology or genetics
3. chemistry through at least organic, including laboratory procedures and two terms of physics and mathematics through college algebra.

Beginning graduate students who do not have this minimum background are expected to satisfy the minimum requirements in the initial stages of the graduate program.

PROGRAM OF STUDY

The program of study for the degree of Master of Science in Life Sciences with emphasis in Botany and Microbiology in the Thesis Option consists of a minimum of 30 semester hours of graduate credit of which at least 15 hours are taken in 500-level courses. Six hours are granted for research and thesis preparation as partial fulfillment of the degree plan. The student will pursue original research in the specialized field of interest selected by himself or herself and approved by the Advisory Committee.

DEPARTMENT OF ZOOLOGY

ADMISSION REQUIREMENTS

In addition to meeting the minimum admission requirements of the Graduate School a candidate for the Master of Science in Life Sciences with emphasis in Zoology must meet the following undergraduate requirements. The Admissions Committee requires the applicant to have a bachelor's degree with not less than 30 semester hours in zoology or 21 hours of animal biology and the remaining hours in life sciences. All course work must be evaluated for acceptance by the Advisory Committee in the Department of Zoology. The applicant should have earned at least 12 semester hours credit in undergraduate chemistry including organic chemistry.

PROGRAM OF STUDY

The degree of Master of Science in Life Sciences, Thesis Option with an emphasis in Zoology consists of 30 semester hours of graduate credit in Zoology. A maximum of 6 hours may be taken in a related field, to be approved by the student's Advisory Committee. In addition to graduate credit hours, each student may be required to remove subject

matter deficiencies as determined by the student's Advisory Committee.

Fifteen hours of the total 30 may be selected from 400-level course and fifteen from 500 level courses. Six hours of the 500 level courses are granted for Life Sciences 551 — Research and Thesis, each quarter while the student is in residence, with a maximum of 2 hours allowed toward the degree.

The graduate program in the Department of Zoology offers specialized training leading to the degree Master of Science in the following areas: animal ecology, cytogenetics, cytology, entomology, genetics, herpetology, ichthyology, limnology, mammalian physiology, mammalogy, ornithology, parasitology, and vertebrate anatomy. Graduates of the program are qualified to work in the fields of basic research in analytical or descriptive zoology, applied or developmental research,

teaching, and industrial or governmental programs or administration.

NON-THESIS OPTION

This option is offered in the specialized areas of Clinical Microbiology and Life Science Education. This option is directed to enhance and broaden the knowledge and capabilities of elementary or secondary science teachers, medical technologists or bacteriologists and other types of scientists who pursue the master's degree program. The Clinical Microbiology option offers a 12-week internship for 6 hours credit at a regional medical center in lieu of the thesis requirement. The Science Education major will build on the baccalaureate training as well as build a stronger foundation to pursue the Master's plus 30 or doctorate in Science Education.

Courses of Instruction

Courses numbered 100 are designed for freshmen, 200 courses are for sophomores, 300-400 courses are for juniors and seniors, and 500 courses are for graduate credit. In some cases, 300 and 400 level courses may carry graduate credit; in such cases, students undertake additional work to bring the courses up to graduate level. Only students admitted to the Graduate School may enroll for 500-level courses.

The numerical listing after each course title gives the following information: first number, laboratory hours per week; second, lecture period per week (90 minute periods with break included); third, credit value in semester hours; fourth, the total semester hours credit which can be earned in the course (the fourth number will appear only for those courses which may be repeated for credit). Example: 3-1-2- (6).

The following abbreviations indicate the quarters of the calendar the course normally will be offered: Su-Summer Quarter, F-Fall Quarter, W-Winter Quarter, and Sp- Spring Quarter. Where courses are offered on alternate years only, the words "even" or "odd" will indicate which years the course will be offered.

NOTE: Course offerings by quarter are subject to change to accommodate needs of students.

ACCOUNTING

- 203-204: Elementary Accounting.** 0-2-2 each. Basic understanding of concepts and methods of accounting; recording and control processes of purchases, sales, cash, and inventories; significance of such information to the sole proprietor and corporate entity. Su,F,W,Sp.
- 205: Elementary Accounting.** 0-2-2. Preq., Accounting 204. Accounting for manufacturing, partnerships, investments, long-term liabilities, flow of funds, departmentalization and control, tax considerations, and an analysis and interpretation of financial statements. Su,F,W,Sp.
- 210: Administrative Accounting.** 0-3-3. Preq., Accounting 204. This course considers the use of accounting and financial statements in business, finance, administrative control and decision making. Su,F,W,Sp.
- 303-304-305: Intermediate Accounting.** 0-2-2 each. Preq., Accounting 205 or 210. Balance sheet valuations; income and retained earnings statements errors and their corrections; statement analysis; statements from incompleting records; and long-term debt. Su,F,W,Sp.
- 307: Income Tax.** 0-3-3. Preq., Accounting 205, 210 or consent of instructor. A study of Federal income tax laws and state income tax laws and their effect on individual income. Su, F,W,Sp.
- 308: Managerial Cost Accounting.** 0-3-3. Preq., Accounting 205 or 210. A study of cost systems; accounting peculiar to manufacturing enterprises; making cost statements; and solving cost problems. Su,F,W,Sp.
- 312: Municipal and Government Accounting.** 0-3-3. Preq., Accounting 305. Accounting procedures of the Federal, municipal, and state governments. Attention is given to the preparation of budgets, financial statements, and to budgetary control. F.
- 406: Advanced Income Tax.** 0-3-3. Preq., Accounting 307. A continuation of Accounting 307 with further study into tax problems of fiduciaries, partnerships, and corporations; solutions of problems. W.
- 411: Advanced Accounting.** 0-3-3. Preq., Accounting 305. A study of higher accountancy; problems met in practical accounting; fiduciary accounting; partnerships and joint ventures; and installment sales. Su,F,W,Sp.
- 412: Advanced Accounting.** 0-3-3. Preq., Accounting 305 and preferably Accounting 411. A continuation of Accounting 411. Consolidated statement. Su,F,W,Sp.
- 413: Auditing.** 0-3-3. Preq., Accounting 305 and credit for or registration in Accounting 308. Auditing procedures; working papers and reports. Su,F,W,Sp.
- 422: Taxation of Corporations and Shareholders.** 0-3-3. Preq., Acct. 307 and senior standing. In-depth study of tax law that pertains to corporations and shareholders; corporate organizations; liquidation; reorganization; and Subchapters S.W.
- 433: Accounting Systems.** 0-3-3. Preq., Accounting 411. A study of accounting systems and systems installations. Su.
- 451: Advanced Cost Accounting.** 0-3-3. Preq., Accounting 308. A study of the advanced phases of cost accounting: standard costs; distribution costs; cost analysis. F.
- 490: C.P.A. Problems.** 0-3-3. Preq., permission of advisor. An intensive problem course in C.P.A. examinations. Sp.
- 491: Advanced Theory of Accounting.** 0-3-3. Preq., permission of advisor. Intensive study of current advanced accounting theory. W.
- 493: Advanced Auditing.** 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, and internal auditing. Sp.
- 505: Accounting Analysis for Decision Making.** 0-3-3. A study of accounting data and their uses with the goal of aiding management in the use of such data for decision making.
- 506: Seminar in Financial Accounting.** 0-3-3. A brief historical development of accounting thought followed by investigations into controversial and special areas of financial accounting.
- 507: Contemporary Accounting Theory.** 0-3-3. An intensive study of recent developments, research and literature in accounting theory promulgated by the various professional accounting associations and related financial organizations.
- 508: Advanced Accounting Analysis and Controls.** 0-3-3. Cost data analysis and accounting controls in planning and controlling operations and in making special decisions.
- 513: Advanced Auditing.** 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, statistical sampling, and internal auditing. Sp.
- 517: EDP in Accounting.** 0-3-3. A study of the adaptation of accounting procedures and systems to EDP operations, including the proper utilization of existing EDP equipment in auditing the firm.
- 521: Cases and Problems in Income Taxes.** 0-3-3. Preq., Accounting 307. Research cases covering various phases of income taxes; study of some source materials and research methods for ascertaining current rulings and trends in laws and regulations.
- 541: Accounting Analysis.** 0-3-3. Preq., Permission of advisor and all other accounting common body of knowledge courses. Accounting policy and analysis through integration and application of knowledge gained in accounting and accounting related courses; emphasized interrelationships of major functions of business and analysis.
- 567: Special Problems in Accounting.** 0-3-3. Preq., consent of committee. A supervised individual project involving library and/or field work. A comprehensive written report and/or examination is required.

ADMINISTRATION AND BUSINESS

- 300: Special Problems.** 0-3-3. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Topic will determine course admissions criteria. Su.
- 301: Independent Study.** 1-3 hours credit. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Normally taken only by CAB students in their curricular specialty. Su.
- 550: Special Problems.** 0-3-3. Preq., Approval of instructor, department head, CAB Graduate Director. Selected contemporary business and/or economics topics. Normally taken only by CAB graduate students in their curricular specialty or major.
- 551: Research and Thesis.** 3 hours credit. Maximum credit allowed is 6 hours.
- 590: Research and Dissertation.** 3 hours credit. Maximum credit allowed is 30 hours.

AGRICULTURAL EDUCATION

- 250: Fundamentals of Vocational Agricultural Education.** 0-3-3. A course concerned with the history and development of vocational education as applied to agriculture, with emphasis upon recent legislation and state plan requirements. W.
- 301: Materials and Methods in Teaching Vocational Agricultural Education.** 0-3-3. Preq., junior standing. Specific techniques in organization and presentation of vocational agricultural subject matter to the high school agriculture student. Sp.
- 450: Advanced Agricultural Shop Methods and Safety.** 3-2-3. Preq., Agricultural Engineering 211 or consent of instructor. The school shop, equipment and safety as they are utilized in a learning environment.

AGRICULTURAL ENGINEERING

- 100: Introduction to Agricultural Engineering.** 3-0-1. Characteristics of the profession, engineering methods and engineering "tools". F.
- 105: Agricultural Drawing.** 6-0-2. The basic principles of drafting as applied to agriculture. Lettering and sketching, working drawings, and blueprints.
- 110: Elementary Drafting.** 3-0-1. Introductory drafting, freehand lettering, care and use of drawing instruments. Su,F,W,Sp.
- 186: Solutions to Agricultural Engineering Problems.** 3-0-1. Engineering solutions to introductory problems in agricultural and forestry machinery, structures, electrification, and soil and water. W.
- 206: Agricultural Machines.** 3-2-3. The selection, adaptation, operation, care, and repair of farm machinery. F.
- 209: Small Engines.** 3-0-1. Principles of operation, construction, application, maintenance and overhaul procedures of small internal combustion engines.
- 210: Farm Tractors.** 3-1-2. Principles of engines. Selection, maintenance and adjustment of power units used in forest and farm operations.
- 211: General Shop.** 6-0-2. Care and use of tools, gas and electric welding, cold metal work and woodwork. Su,F,W,Sp.
- 214: Machinery Principles.** 3-1-2. Power and energy relationships applied to machines in the biologically related industry. Machine components and lubrication.
- 215: Land Drainage and Terracing.** 6-0-2. Elementary surveying. Layout and construction of erosion control structures, and drainage systems. Su,F,W,Sp.
- 216: Forest Machinery.** 3-1-2. The principles of selection, operation, maintenance of machines used in timber harvesting, planting and woodland operation.

- 217: Microclimatology.** 3-0-1. A study of climatic elements in relation to agriculture and forestry. Modification of microclimates by sheltering, shading, ground cover, frost protection devices, windbreaks and irrigation, W, even.
- 266: Soil and Water Management.** 6-0-2. Engineering principles of location, design and construction of drainage and erosion control facilities. Hydrological, hydraulic and surveying principles used in the management of agricultural lands and waters. F.
- 276: Engineering Properties of Bio-Materials.** 3-0-1. Engineering properties of plant and animal materials related to harvesting, processing, storage and distribution. W.
- 286: Bio-Machinery Principles.** 3-0-1. Engineering analysis of components of machines used in the production of food and fiber. Sp.
- 301: Agricultural Structures.** 3-2-3. Preq., consent of the department head. Heat transfer; airwater vapor mixtures; ventilation; systems analysis; functional design of agricultural structures.
- 303: Farm Buildings.** 3-1-2. The location, arrangement, design, construction, care, and repair of farm buildings.
- 307-308: Farm Power Units.** 3-1-2 each. Preq., consent of the department head. Engineering principles of farm power units.
- 315: Agricultural Machinery Design.** 3-2-3. Preq., Engineering Mechanics 211. Functional requirements and principles of operation of agricultural and forestry machines. Design and specification of power transmission components. Cost analysis. Materials of construction.
- 320: Electricity Applied to Bio-Systems.** 3-2-3. Practical application of electricity to farm and forest operations including electric motors, power rates, safety, wiring, lighting and heating.
- 340: Logging Roads.** 3-1-2. Principles of planning, layout and construction of forest roads, including culverts and drainage.
- 401: Farm Utilities.** 3-1-2. Preq., consent of the department head. Well hydraulics, water supply, plumbing and sewage disposal systems as applied to the farm and home.
- 403: Soil and Water Conservation Engineering.** 3-2-3. Preq., consent of the department head. An advanced study of the engineering principles and practices involved in conserving soil and water. Irrigation design.
- 405: Rural Electrification.** 3-2-3. Preq., Electrical Engineering 213. The engineering application of electricity to problems in agriculture. Design of wiring; controls and machinery needed in crop drying; lighting; and agricultural processing.
- 409: Special Problems.** 0-1-1 (4). Preq., Senior standing or consent of the department head. Special problems in the field of agricultural engineering.
- 411: Seminar.** 0-1-1. Preq., senior standing or consent of the department head. Reviews and discussions of current scientific literature and recent developments in agricultural engineering.
- 415: Fluid Power and Controls.** 3-1-2. Preq., consent of the department head. Analysis and design and fluid power and control systems. Study of components and their agricultural and industrial application.
- 418: Problems.** 0-1-1 (4). Problems in planning and mechanization of bio-systems.
- 431: Soil Tacticability.** 3-1-2. Factors affecting traction and flotation of off-the-road machinery. W.
- 470: Agricultural Processing Systems.** 0-2-2. Preq., Agric. Engr. 301 and Agric. Engr. 405 or consent of department head. The design and analysis of systems used in the processing of agricultural products.
- 520: Instrumentation.** 0-3-3. Preq., consent of the department head. Instruments used in carrying out scientific and applied research in agricultural engineering.
- 560: Seminar on Water Pollution Control.** 0-1-1.
- 561: Seminar on Water Pollution Control.** 0-1-1.
- 562: Seminar on Water Pollution Control.** 0-1-1.

AGRICULTURE

- 100: Crop Science Laboratory.** 3-0-1. Coreq., Agriculture 101. Basic practical exercises in Agronomic and Horticultural crops practices. F,Sp.
- 101: Crop Science.** 0-3-3. Coreq., Agriculture 100. Principles of production and management of forage, grain, fiber, fruit, vegetable and ornamental crops. F,Sp.
- 241-242-243: Agricultural Internship.** 3 hours credit each, 40 hours per week. Actual work experience in developing skills and acquiring technical knowledge in on-the-job situations. May be repeated for a total of 27 semester hours. Su,F,W,Sp.
- 411: Seminar.** 0-1-1 (3). Reviews, reports, and discussion of current problems in Agriculture and related fields. F,W,Sp.
- 441-442-443: Agricultural Internship.** 3 hours credit each, 40 hours per week. Work experience in the intern's major field of Agronomy, Horticulture, Animal Science, Dairying or Agriculture-Business. Su,F,W,Sp.

AGRONOMY

- 200: Soils Laboratory.** 3-0-1. Preq., Chemistry 101 and 103 or 120, 121 and 123. Coreq., Agronomy 202. Laboratory exercises to elaborate fundamental principles of soil properties; soil testing and Soil Survey reports. Su, F, W, Sp.
- 202: Soils.** 0-3-3. Preq., Chemistry 101 and 103 or 120, 121, 123. Coreq; Agronomy 200. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. Su,F,W,Sp.
- 211: Forage Crops and Pasture Management.** 3-2-3. A study of the growth adaptation and culture of forage crops including types of plants, methods of establishment and improvement and use of forages.
- 307: Field Crops.** 3-2-3. A study of fundamentals of production, harvesting, storage, marketing, and utilization of grain, fiber, oil, and sugar crops. W, even.
- 312: Turf Management.** 3-2-3. Establishment, maintenance, and management of turf grasses for homes, athletic fields, golf courses, playgrounds, parks, highways, airfields, and other uses. F, even.
- 315: Soil Fertility.** 3-3-4. Preq., Agronomy 200, 202. Fundamentals of soil fertility and plant nutrients. W, odd.
- 330: Soil Conservation and Crop Management.** 0-3-3. The causes and control of soil and water losses and the maintenance of soil productivity. W, even.
- 405: Soil Physics.** 3-2-3. Preq., Agronomy 200, 202. A study of the physical properties of soils and their relation to soil utilization. Sp, even.
- 408: Fertilizer Technology.** 0-3-3. Preq., Chemistry 102. Source, manufacturing, processing, use, properties and characteristics of chemical fertilizers. F.
- 409: Plant Breeding.** 3-2-3. Preq., Life Sciences 300. A study of the application of the fundamental principles of genetics to the development and maintenance of improved plant varieties. Sp, even.
- 410: Soil Development and Classification.** 6-2-4. Preq., Agronomy 200, 202. The genesis morphology, and classification of the soils of the United States, with particular reference to classification and mapping of Louisiana soils. Sp, odd.
- 421: Weed Science.** 3-2-3. Weed control in Agricultural crops, including weed ecology, classification, dormancy, dissemination; seed anatomy and germination; herbicidal action and practical application techniques. F.
- 422: Pest Management.** 0-3-3. Basic concepts of integrated pest management; pesticides, biological control agents, varietal resistance, pheromones and trap crops, laws and regulations, labeling requirements, pesticide classification and safety. W.
- 423: Pest Management.** 3-2-3. Identification of insects, nematodes and disease-causing organisms affecting row crops of the south; monitoring procedures, economic threshold levels; steps in solving pest problems.Sp.

AIR FORCE AEROSPACE STUDIES

- 125: U.S. Air Force Organization (GMC).** 1-1-1. Analysis of the organization of the U.S. Air Force. Includes several major Air Force Commands. Laboratory begins Air Force customs and courtesies and military drill. F.
- 126: U.S. Air Force Organization and Doctrine (GMC).** 1-1-1. Completes the analysis of Air Force organization. Examination of Air Force doctrine and relationship with other U.S. military forces. Laboratory continues military drill and adds classroom presentations by advanced cadets on variety of aspects of Air Force life. W.
- 127: The U.S. Air Force Today (GMC).** 1-1-1. Discussion of the Air Force today. Includes topics such as professionalism and human rights. Comparison of U.S. and U.S.S.R. forces. Laboratory continues military drill and Air Force Orientation. Sp.
- 225: The Development of Air Power (GMC).** 1-1-1. The beginnings of manned flight from balloons and dirigibles, to the Wright Brothers, World War I and the interwar years. Laboratory includes practice in drill and ceremonies. F.
- 226: The Development of Air Power (GMC).** 1-1-1. Continuation of 225. A study of air power during World War II, the Berlin Airlift and Korea. Laboratory consists of leadership training and career orientation. W.
- 227: The Development of Air Power (GMC).** 1-1-1. Continuation of 226. A study of U.S. air power in the international arena from 1955 to the present. Laboratory consists of preparation for summer field training. Sp.
- 331: Air Force Leadership (POC).** 1-2-2. Analysis of leadership styles and the traits of a leader. Group dynamics. Laboratory provides leadership experience. F.
- 332: Military Management (POC).** 1-2-2. Study of management principles with emphasis on the view of an Air Force junior officer. Laboratory continues leadership experiences. W.
- 333: Communications for the Air Force (POC).** 1-2-2. Functions and formats of Air Force communications. Emphasis on written and oral communications used by junior officers. Laboratory continues leadership experiences. Sp.
- 425: Flight Instruction Program (POC).** 3-2-2. Required for designated pilot candidates. Theory of Flight; Federal Aviation Regulations, meteorology, navigation, and radio communication. Flying training preq; must be within 12 months of commissioning. 25 flying hours. F,W.
- 431: The Military in Contemporary Society (POC).** 1-2-2. Examination of military professionalism and existing patterns of civil-military relations. Laboratory provides advanced leadership positions. F.
- 432: Defense Organization and Policy (POC).** 1-2-2. Analysis of the international and domestic environments affecting U.S. defense policy. Laboratory begins preparation for transition from civilian to military life. W.
- 433: Conflict Management and Military Justice (POC).** 1-2-2. Examination of methods of managing conflict. History of the military justice system. Laboratory continues advanced leadership experiences and preparation for initial active duty. Sp.

ANIMAL SCIENCE

- 101: Survey of Animal Science** 3-2-3. a general survey including types, grades and classes of cattle, sheep, swine, and horses. Lab provides practical application for practices taught in lecture. Sp.
- 111: Introduction to Animal Science.** 3-2-3. Introduction to the field of Animal Science with particular emphasis on terminology, breeds and basic husbandry practices of beef cattle and horses. F.

- 112: Introduction to Animal Science.** 3-2-3. Continuation of Animal Science 111 with emphasis on terminology and husbandry practices of swine, sheep, dairy cattle and poultry and an introduction to veterinary medicine. W.
- 201: Introduction to Poultry Science.** 3-2-3. The principles and practices of breeding, incubation, nutrition, disease control, management practices and marketing of poultry. F.
- 202: Introduction to Dairy Science.** 3-2-3. Preq., Animal Science 101 or 112 or permission of instructor. Principles and practices of breeding, feeding and managing dairy cattle for maximum productivity with an introduction to processing and manufacturing. F,Sp.
- 204: Meat Animal and Carcass Evaluation.** 3-2-3. Selection of carcasses and wholesales cuts of beef, pork, and lamb; factors influencing grades, yields, and values in cattle, hogs, and sheep. W.
- 211: Introduction to Equine Science.** 3-2-3. A general survey of principles of horse management and husbandry, to include anatomy, unsoundness, nutrition, health and reproduction. F.
- 301: Principles of Animal Nutrition.** 0-3-3. Preq., Animal Science 101 and Chemistry 102. The source, chemical composition, characteristics, and nutritive value of farm animal feeds; rations. F.
- 303: Livestock and Livestock Products Judging.** 2-1-2. Preq., Animal Science 101 or permission of instructor. The theory and practice of judging livestock and livestock products. F.
- 307: Endocrinology and Milk Secretion.** 0-3-3. Development, structure, and functional processes of the endocrine and mammary systems. F.
- 315: Meats.** 6-1-3. Preq., Animal Science 101 and Bacteriology 210. Methods and practices involved in the processing and preservation of meats. W.
- 318: Physiology of Reproduction.** 3-2-3. Preq., Animal Science 307 or Zoology 320 or equivalent and Life Sciences 300. Physiology of reproduction of domestic animals including man. Histology, embryology and anatomy of reproductive systems; gametogenesis, fertilization, gestation and parturition. W.
- 319: Applied Reproduction of Farm Animals.** 3-1-2. Preq., Animal Science 318 or permission of instructor. Application of the methods and techniques of semen collection, evaluation, processing and preserving; insemination of females and pregnancy diagnosis; health, nutrition and management for maximum reproductive efficiency. Sp.
- 320: Intermediate Horse Management.** 3-2-3. Preq., Animal Science 211, 301, 318 or equivalent. An in-depth study of nutritional requirements and reproductive physiology of the horse. W.
- 401: Animal Breeding Principles.** 0-2-2. Preq., Life Sciences 300. Principles of breeding domestic livestock, including gene frequencies heritabilities, inbreeding coefficients, and pedigree analysis. W.
- 402: Animal Breeding Practices.** 0-2-2. Preq., Animal Science 401. Application of animal Breeding principles. Selection, mating systems, and use of computer in breeding and improvement of domestic livestock. Sp.
- 403: Advanced Livestock Judging.** 3-1-2. Preq., Animal Science 303. An advanced course in comparative judging of beef cattle, swine, sheep, and horses. F.
- 405: Applied Animal Nutrition.** 0-3-3. Preq., Animal Science 301. Growth, reproduction, lactation, fattening, and work production as it relates to the chemistry and physiology of nutrition. W.
- 407: Dairy Herd Management.** 6-1-3. Preq., Animal Science 102 and 301. Principles and practices in breeding, feeding and management of dairy cattle. Odd years.
- 408: Swine Production.** 3-2-3. Preq., Animal Science 301. Principles and practices of breeding, feeding, marketing and management of swine. F.
- 410: Ruminant Production.** 3-3-4. Breeding, feeding, marketing, and management of beef cattle and sheep. Sp.
- 411: Advanced Horse Management.** 6-1-3. Preq., Animal Science 320. Practical application of principles of nutrition, herd health, reproduction and marketing of horses. Sp.
- 420: Horse Behavior.** 3-2-3. Preq., Animal Science 411 and permission of instructor. Principles and procedures employed in tackless training of horses. Su.
- 421: Racetrack Backside Management.** 0-3-3. Preq., Animal Science 411 or permission of Department Head. Racetrack management pertaining to backside activities. Care and maintenance of horses and events leading up to and subsequent to running of a race. F.
- 422: Administration of Racing Facility.** 0-3-3. Preq., Animal Science 421. Opportunities in racetrack management. Legal aspects, facility management and racing administration, including duties of racing secretary, starters, jockey agents, etc. W.
- 423: Racetrack Management Practicum.** 6-0-2. Preq., Animal Science 422. Practical application of theory learned in Animal Science 421 and 422. Laboratories conducted at racetrack provide on-site experience in various phases of racetrack management. Sp.
- 425: Special Problems in Animal Science.** 4 1/4-0-1. (8) Preq., Written consent of instructor. Foal management and sale preparation; steer fitting and showing; Livestock Judging Team; or topic selected with consent of advisor.
- 440: Equine and Livestock Operations.** 0-3-3. Preq., Animal Science 411 or equivalent. Study of unique aspects of procuring and operating different categories of horse units and relationships of such units to other livestock and farm enterprises. F.

ARCHAEOLOGY

- 401: Introduction to Archaeology.** 4-2-3. An introduction to the techniques of research and field work in Archaeology.
- 420: Indians of the Southwest.** 4-2-3. Preq., Archaeology 401. A survey of Indian Archaeology in the southwestern United States.
- 462: Christian Archaeology.** 3-2-3. Preq., History 101 or consent of instructor or junior standing. A study of the archaeology, architecture, and inscription in early Christian sites in and nearby Rome. Su.
- 463: Etruscan Archaeology.** 3-2-3. Preq., History 101 or consent of the instructor or junior standing. A study of the art, architecture, archaeology, history and inscriptions of the Etruscans. Offered only on location in Central and Northern Italy. Su.
- 464: Roman Archaeology.** 3-2-3. Preq., History 101 (or equivalent) or consent of instructor, and at least junior standing. A study of the monuments and antiquities of Classical Rome.
- 466: Egyptian Archaeology.** 3-2-3. Preq., History 101 or consent of instructor or junior standing. The study of the archaeology, art, architecture, history, and inscriptions of the ancient Egyptians. Field work in museums. Su.

ARCHITECTURE

- 110: Basic Design.** 6-0-2. An introduction to the theory and practices of design and composition, through problems involving the articulation of two-dimensional space, using geometrical and color relationships.
- 111: Architectural Theory.** 0-2-2. An introduction to the concept of Architecture as a language system, involving an examination of its basic vocabulary and grammar.
- 120: Basic Design.** 6-0-2. Preq., Arch 110 and 111. A continuation of Arch 110 at a more advanced and comprehensive level through problems involving the abstraction and composition of complex images using diverse media.
- 121: Architectural Theory.** 0-2-2. Preq., Arch 111. A continuation of Arch 111, involving a critical examination of more complex vocabularies with emphasis on general developments in the history of Architecture.
- 122: Communication Skills.** 6-0-2. An introduction to the principles, techniques and media used in creative and representational drawing, through studio problems requiring alternative means of graphic communication.
- 130: Three-Dimensional Design.** 6-0-2. Preq., Arch 120 and 121. Development of the experiences of Arch 110 and 120 through

three-dimensional experiments in the composition of the point, line and plane as architectonic elements of spatial design.

- 131: Architectural Theory.** 0-2-2. Preq., Arch 121. An examination of a variety of historical and contemporary concepts of architecture with emphasis on broad philosophical, theoretical and critical techniques.
- 132: Advanced Communication Skills.** 6-0-2. Preq., Arch 122. A continuation of Arch 122. Advanced techniques for presentational and representational communication are explored through studio problems requiring sophisticated graphic or non-verbal communication techniques.
- 210: Architectural Design.** 9-0-3. Preq., Arch 130 and 131. An introduction to the formal language of architecture which translates basic design concepts into strategies for effectively combining and composing the fundamental components of architecture.
- 216: Design.** 6-1-3. Preq., Arch 110 and 120 or Art 115 and 116. Problems in three-dimensional design and increased emphasis the development of individual ideas through various materials such as clay, plaster, fiber glass, wood, plastics or steel. (Same as Art 216).
- 220: Architectural Design.** 9-0-3. Preq., Arch 210. A continuation of Arch 210 emphasizing the controlled combination of fundamental elements within the framework of contextual, functional, behavioral and symbolic constraints.
- 230: Architectural Design.** 9-0-3. Preq., Arch 220. A culmination of a three part sequence through which the fundamental ideas, issues, components and strategies relating to architecture have been introduced, examined and explored.
- 231: Contemporary Architectural History.** 0-3-3. Preq., Art 367. An examination of the rise of the modern and contemporary movements in architecture with reference to their social, cultural, intellectual and technological contexts.
- 307: Specifications and Working Drawings.** 6-1-3. Detailed specifications, supervision, and superintendence. Sp.
- 310: Advanced Architectural Design.** 14-0-4. Preq., Arch 230. Critical examination in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 320: Advanced Architectural Design.** 14-0-4. Preq., Arch 310. Critical examination, in the "professional concentration" design studios, of studios, of issues having broad architectural and educational relevance.
- 321: Architectural History Seminar.** 0-2-2. Preq., Arch 231. A critical analysis, using the seminar mode, of selected concepts, precedents and periods in the history of architecture and environmental design.
- 330: Advanced Architectural Design.** 14-0-4. Preq., Arch 320. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 331: Advanced Theory of Architecture.** 0-2-2. Preq., Arch 320. A study of the evolution of architectural theory; from Vitruvius to contemporary theorists with special emphasis on the writings of leading architects and aesthetic philosophers.
- 350: Visual Studies.** 6-1-3- (9). Design theory and methods with form study in physical environment. Studio exercises in visual perception, organization, structure and communication.
- 360: Techniques Workshop.** 4-0-1 (4). Explorations and exercises in various techniques, methods and processes related to design and the practice of architecture.
- 380: Applied Studio Practices.** 6-1-3- (9). second year Associate Degree candidates. This course offers students practical problems in graphic and visual communications.
- 400: Studio Problems.** 6-1-3- (9). Specialized studio problems in aqueous media on paper.
- 410: Advanced Architectural Design.** 14-0-4. Preq., Arch 330. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.

- 411: Planning and Urban Design Theory.** 0-2-2. Preq., Arch 330. An examination of the process of design and change in urban environments, with discussion of strategies and processes for intervening in the development of these environments.
- 420: Advanced Architectural Design.** 14-0-4. Preq., Arch 410. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 430: Advanced Architectural Design.** 14-0-4. Preq., Arch 420. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 431: Architectural Seminar.** 3-1-2. A critical analysis of selected topics having specific architectural relevance in the area of either theory, technology, economics, design or practice.
- 445: Professional Problems.** A (4 1/2-0-1); B (9 1/2-0-2); C (13 3/4-0-3). Individual study with variable credit of selected professional problems having educational significance. Topic and credit by agreement with the Department Head.
- 450: Related Readings.** A (4 1/2-0-1); B (9 1/2-0-2); C (13 3/4-0-3). Guided readings in a specific aspect of architectural theory or practice under the supervision of a faculty member. Credit and topic by agreement with the Department Head.
- 471: Professional Practices.** 3-1-2. A sequence of critical analysis in which the ethics, policies, relationships and legal principles and processes affecting professional architectural practice are explored.
- 472: Architectural Seminar.** 0-2-2. A critical analysis of selected topics relating to the history, theory and criticism of architecture.
- 480: Advanced Architectural Design.** 14-0-4. Preq., Arch 470. Critical examination in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 481: Professional Practice.** 3-1-2. Preq., Arch 471. A critical examination of the techniques and strategies conventionally used in the professional practice of architecture within the framework of both traditional and contemporary contexts.
- 482: Architectural Programming.** 0-2-2. Advanced techniques of research, analysis and programming through which the effect of pre-design issues and constraints are examined.
- 490: Degree Design Project.** 14-0-4. Preq., Arch 482. Independent degree design project under the supervision of a selected faculty member, in which the student is given the opportunity to create a theory-testing design.
- 491: Practitioners Potpourri Seminar.** 3-1-2. A comprehensive survey, presented by practitioners and other specialists from various disciplines, of selected topics dealing with the profession and practice of architecture.
- 492: History of Italian Architecture.** 0-4-2. An extensive study of the development of Italian Architecture, urban form and landscape design from the Early Etruscan period throughout the Baroque movement.
- 470: History of Italian Architecture.** 0-3-3. An indepth study of Architecture in Rome and Florence.
- 556: Problems.** 12-2-6. Preq., fifth year classification in Architecture. Special projects in architecture and landscape. Projects must be approved by Department Head.
- 559: Specialized Individual Studio Problems.** 6-1-3- (9). Permission and project approval must be obtained from Department Head.

ART

- 101: Art Structure.** 3-1-2. (For education majors). Foundation course for art study. Theory and practice in the elements of art as a basis for appreciation of fine arts and crafts of the past and present.
- 102: Art Structure.** 3-1-2. (For education majors). A continuation of Art Structure 101 in the elements and principles of art structure. Problems in drawing, painting, design, lettering, poster composition.

- 105: Colloquim.** 0-1-1. An orientation course (lecture, seminar or demonstration) which strives to acquaint the student with the various disciplines and directions in the visual arts. Freshmen art majors only, or with permission of instructor.
- 115: Design.** 6-1-3. Formal problems of the theory and practice in the elements and principles of design.
- 116: Design.** 6-1-3. Continuation of Art 115.
- 117: Mixed Media.** 6-1-3. A materials and techniques course with the emphasis on experimental investigations which combines both traditional and contemporary approaches.
- 120: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on observation and representation.
- 121: Painting.** 6-1-3. Continuation of Art 120.
- 125: Drawing.** 6-1-3. A study of the principles underlying all creative and representation drawing.
- 126: Drawing.** 6-1-3. A continuation of Art 125.
- 170: Introduction to Photography.** 6-1-3. The fundamentals of photography. The use of the camera, and development of black and white and color transparencies. No prerequisite.
- 173: Printing Black and White Photographs.** 6-1-3. Preq., Art 170. An introduction to black and white printing, proper utilization of darkroom, and presentation of photographs for exhibition. F, Sp.
- 175: Art Structure for Home Economics.** 3-1-2. Problems supplementary to work in the College of Home Economics. Art structure and costume design problems of home and community life.
- 201: Art Education.** 3-1-2. A continuation of Art 102 with emphasis on craft materials and their use in the elementary grades. Ways in which art activities contribute to the social studies.
- 215: Design.** 6-1-3. Preq., Art 115 and 116. The study of color and the interaction of color in design.
- 216: Design.** 6-1-3. Preq., Arch 103 and 105 or Art 115 and 116. Problems in three-dimensional design and increased emphasis on the development of individual ideas through various materials such as clay, plaster, fiber glass, wood and plastics. (Same as Architecture 216.)
- 220: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on the human figure.
- 221: Painting.** 6-1-3. Continuation of Art 220.
- 225: Drawing.** 6-1-3. The study of human anatomy as related to problems of art.
- 228, 229: Figure Drawing.** 6-1-3 each. Drawing in media from models.
- 240: Ceramics.** 6-1-3. Introductory course on methods of ceramic construction with emphasis on the creative aspects of pottery.
- 241: Ceramics.** 6-1-3. Continuation of Art 240 with emphasis on the use of the potters wheel.
- 250: Beginning Interior Design Studio.** 6-1-3. Preq., Art 116 and 220. The introduction of the basic elements of interior design; primary and secondary function, space, form, structure, color, and texture through studio experiences. Sp.
- 270: Concepts of Photographic Imagery.** 6-1-3. Preq., Art 173. An introduction to the many facets of contemporary photography from documentary to conceptual. An overview of approaches to problem solving with the camera. F.
- 271: Experimental Black and White Techniques.** 6-1-3. Preq., Art 173. Problems in manipulating black and white processes including the use of graphic arts films, Sabattier effect, toning, multiple printing, sequential imagery and photo-sensitive materials. W.
- 308: The Mechanics of Graphic Design.** 6-1-3. An introduction to the equipment, printing methods and the typography of the graphic designer.
- 309: Symbols of the Graphic Designer.** 6-1-3. Preq., Art 308. Studio problems dealing with contemporary design solutions that incorporate typography as an art element.
- 312: Packaging.** 6-1-3. Preq., Art 308. Studio problems involving research and design experiences focusing on packaging design. Sp.
- 315: Layout.** 6-1-3. Preq., Art 308. Primary concern will be with newspaper and magazine design and layout.
- 316: Advanced Layout of Ad Campaigns.** 6-1-3. Preq., Art 309, 312, 315. Continuation of Art 315, Layout, with advanced problems in advertising campaigns. F.
- 317: Environmental Graphics.** 6-1-3. Preq., Art 309, 315. Emphasis on environmental graphics problems such as super graphics and signage and numbering systems. F.
- 320: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on experimentation in various media, subjects, and techniques.
- 321: Painting.** 6-1-3. Continuation of Art 320.
- 325: Illustration.** 6-1-3. Preq., Art 308. Emphasis on line and wash techniques and exploring other mediums of contemporary illustration.
- 326: Advanced Illustration.** 6-1-3. Preq., Art 309, 315, 325. Advanced illustration problems in record jackets, posters, magazine covers, book covers, and story illustrations. W.
- 330: Screen Printing.** 6-1-3. Introduction to silk-screen printing with emphasis upon photo-sensitive screen process.
- 331: Introduction to Printmaking.** 6-1-3. Preq., Art 330. A basic survey of printing techniques in linoleum cut, wood cut, collograph, dry point, etching and lithography. F, Sp, Su.
- 346: Ceramics.** 6-1-3. Preq., Art 241. An Advanced course in ceramic design and construction with the introduction to the construction and use of ceramic kilns.
- 347: Ceramics.** 6-1-3. Preq., Art 346. A continuation of Art 346.
- 352: Interior Design.** 6-1-3. Preq., Art 250. Studio problems in the space planning and design of interior environments, emphasis on design methodology, materials, furnishing systems, detail drawing and presentation. F.
- 353: Interior Design.** 6-1-3. Preq., Art 352. A continuation of Art 352.
- 354: Interior Design.** 6-1-3. Preq., Art 353. A continuation of Art 353.
- 355-356: Environmental Factors.** 6-1-3 each. Preq., Junior standing. Interior environment support systems such as lighting, electricity, acoustics, heating, ventilation and air-conditioning, plumbing. Human factors and principles are applied to interior situations. F.
- 364: Art Appreciation.** 0-3-3. Study and enjoyment of art in its various expressions. Principles for critical judgment. Art in dress, the home, furniture, textiles, pottery, painting, graphic arts, and civic art.
- 366: History of Art.** 0-3-3. A survey of the painting, sculpture, architecture, minor arts of ancient, medieval, and modern periods.
- 367: History of Art.** 0-3-3. A continuation of Art 366.
- 368: History of Art.** 0-3-3. Travel to the art centers of Europe visiting the galleries and museums in cities such as London, Amsterdam, Paris, Rome, Florence, etc.
- 370: Color Photography.** 6-1-3. Preq., Art 270. An introduction to printing film negatives and transparencies onto color photographic papers. Sp.
- 372: Studio Photography.** 6-1-3. Problems in controlled lighting for portraiture, figure, fashion, product, and introduction to view camera operation.
- 373: Commercial Photography.** 6-1-3. Preq., Art 372. An introduction to commercial applications of photography. Large format camera operation is studied with assignments covering a wide range of topics from Architecture to Fashion. W.
- 374: Commercial Portfolio.** 6-1-3. Preq., Art 373. A concentrated study in one area of interest and production of a portfolio suitable for presentation. Large format color will be used extensively. Sp.

- 390: Sculpture.** 6-1-3- (9) . Investigations in sculptural processes, materials, and techniques.
- 391: Sculpture.** 6-1-3- (9) . Creative approach to problems in metal casting, fabrication, welding, mold technology, and foundry procedures.
- 412: Studio Problems.** 6-1-3- (9) . Advanced problems in art for reproduction techniques. F,W,Sp.
- 415: Studio Problems.** 6-1-3 (9) . Advanced problems in design.
- 417: Senior Portfolio.** 6-1-3. Preq., Senior standing, spring quarter prior to graduation. The designing and preparation of a job portfolio and resume that will also culminate in an exhibition of graduating seniors. Sp.
- 420: Studio Problems.** 6-1-3- (9) . Advanced problems in painting.
- 427: Advanced Drawing.** 6-1-3- (9) . Interpretive approach to drawing.
- 430: Studio Problems.** 6-1-3- (9) . Advanced problems in printmaking.
- 440: Studio Problems.** 6-1-3 (9) . An elective course in advanced crafts.
- 451: Furniture Design.** 6-1-3. Preq., Consent of instructor. Junior standing. Original student furniture design concepts are developed through a coordinated study and analysis of function, anthropometrics, structures, materials, construction and industrial processes. F.
- 452: Interior Design.** 6-1-3- (9) . Preq., Art 354. Intensive interior design experiences to include advanced, complex problems utilizing systematic design methodology and requiring comprehensive solutions.
- 456: Professional Practices.** 0-3-3. Preq., Junior standing. Preparation for entering the professional practice of interior design; includes office procedures, business ethics, contract documents, specifications, and market sources, etc. W.
- 457: History of Furniture.** 0-3-3. Preq., Art 366, 367. History of periods of furniture design from antiquity to industrial revolution, including study of dominant influences and characteristics of historical interiors, furnishings, ornamental design.F.
- 458: History of Furniture.** 0-3-3. Preq., Art 457. A history survey of the development of contemporary design from art Nouveau to the present, including architectural elements, furniture, lighting, wallcovering, flooring and building materials.
- 466: History of Modern Art.** 0-3-3. Historical and critical appraisal of art of the 19th and 20th centuries.
- 467: History of the Arts.** 0-3-3. A survey of the arts: furniture; weaving and textiles; tools and weapons; ornament, both domestic and personal; artifacts of daily life such as painting , sculpture, etc. Offered on the Rome campus.
- 468: History of American Art.** 0-3-3. Historical and critical appraisal of art in American from the colonial era to the present.
- 469: History of Italian Art.** 0-3-3. An indepth study of the art located in Rome and Florence.
- 470: Motion Picture.** 6-1-3. Introduction to motion picture techniques and equipment; production of basic sequences.
- 472: History and Aesthetics of Photography.** 6-1-3. A survey of the photographic image from 1839 to the present, with special emphasis on the development of photographic seeing.
- 473: Advanced Studies in Photography.** 6-1-3- (9) . Criticism of individual projects and group discussions. Admission by portfolio evaluation and/or faculty recommendation.
- 474: Special Problems in Photography.** 6-1-3- (9) . This course is designed for the already advanced student's special interests.
- 490: Sculpture.** 6-1-3- (9) . Creative approach to the problems in sculpture with individually directed experiments in the various sculptural processes.
- 510-511-512: Graduate Design.** 6-1-3- (6) each. Studio work varying with the student's project.
- 513-514-515: Master's Project.** 6-1-3- (6) each. Original, independent studio work approved by the Art Graduate Committee

as appropriate for presentation as a one-man exhibition of final project.

- 520-521-522: Advanced Studio Problems.** 6-1-3- (6) each.
- 540-541-542: Advanced Crafts.** 6-1-3- (6) each. studio work involving the design and construction of two-dimensional and three-dimensional problems. Choice of media with consent of Art Graduate Committee.
- 550: Photographic Projects.** 6-1-3- (9) . Advanced photographic project in field of special interest.
- 564: Graduate Seminar.** 6-1-3. Guided study, discussion, and reading in art related to college level teaching.
- 565: Art History.** 6-1-3- (6) . Guided and/or independent research related to the History of Art.
- 566: Art History.** 6-1-3- (6) . Guided and/or independent research related to contemporary developments in art.
- 567: Graduate Exhibition.** 6-1-3- (6) . Preparation for and installation of graduate exhibition.
- 570: Photographic Projects.** 6-1-3- (9) . Advanced photographic concepts and techniques. Practical and expressive application of photographic processes to the applied and fine arts.
- 571: Photographic Seminar.** 6-1-3. Research paper with supportive audio slide presentation.
- 572: Portfolio.** 6-1-3- (9) . Preparation of a portfolio.
- 573: Photographic Exhibition.** 6-1-3.

ARTS AND SCIENCES

- 435: Undergraduate Research.** A (4 1/2-0-1); B (9 1/2 0-2); C (13 3/4-0-3) . Introduction to methods of research. Preq., consent of the instructor. Credit depends on nature and depth of problem assigned.
- 551: Research and Thesis.** 3 hours credit or multiple thereof. Maximum credit allowed is 6 hours.
- 590: Research and Dissertation.** 3 hours credit or multiples thereof. Maximum credit allowed is 30 hours.

BACTERIOLOGY

- 210: Introduction to Microbiology.** 3-2-3. Basic concepts and laboratory procedures involving microorganisms. F,Sp.
- 212: Survey of Microbiology.** 0-3-3. Fundamental concepts of microorganisms emphasizing techniques used in medically oriented microbiological studies. Su,F,W,Sp.
- 213: General Microbiology Laboratory.** 3-0-1. Preq., Bact 212 or concurrent enrollment. Basic laboratory concepts and procedures involving microorganisms.Su,F,W,Sp.
- 225: Microbiology and the Human Environment.** 0-2-2. Relationship of microbial activities to man's daily life habits. Offered for students not majoring in microbiology. W,Su.
- 306: Determinative Bacteriology.** 3-2-3. Preq., Bacteriology 210 or 212. Nomenclature and recent concepts of bacterial classification. Sp.
- 315: Soil Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212. Microorganisms and microbial activities in soil.F
- 330: Microbial Physiology.** 3-3-4. Preq., Bacteriology 210 or 212 and Chemistry 250. Basic biochemical and physiological activities of microorganisms. W.
- 401: Sanitary Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212. Microbiology of water and sewage. Su,F.
- 405: Food and Dairy Microbiology.** 3-3-4. Preq., Bacteriology 210 or 212. Microorganisms in the food and dairy industries including those that are utilized in dairy and food processing; spoilage and its control.W.
- 406: Pathogenic Bacteriology.** 3-3-4. Preq., Bacteriology 210 or 212. Bacteria pathogenic to man; principles of infection and immunity in man and other animals.Sp.
- 411: Virology.** 3-2-3. Preq., Chemistry 250. Viruses and their relationship to disease in plants, animals, and bacteria. Sp.

- 412: Immunology.** 3-3-4. Preq., Bacteriology 210 or 212 and advanced standing. A qualitative and quantitative study of antigens and antibodies including the chemical basis of antigen-antibody specificity, mechanisms of hypersensitivity, hypersensitive-like states, and immunological diseases. F.
- 413: Petroleum Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212 and Chemistry 250. Micro-organisms of petroleum products and their effects on the petroleum industry.
- 415-416: Seminar.** 0-1-1 each. Preq., consent of the instructor. Selected topics in microbiology and related fields.
- 418: Industrial Microbiology.** 3-3-4. Preq., Bacteriology 210 or 212 and Chemistry 250. Microorganisms of industrial importance, their isolation and identification; stock and starter culture, their maintenance and efficient industrial use; microbial activities in industry.
- 505: Advanced Microbial Physiology.** 3-3-4. Preq., Bacteriology 330. An advanced course on the physiology of bacteria, including bacterial growth and variation, cytology, nutrition, respiration, and temperature effects.
- 506: Advanced Microbial Physiology.** 3-3-4. Preq., Bacteriology 505. Intermediate microbial metabolism, regulating control and biosynthesis, varied metabolic pathways.
- 507: Genetics of Microorganisms.** 3-2-3. Preq., Bacteriology 330. Heredity in microorganisms, biochemical genetics; and genetic control of metabolism.
- 512: Advanced Immunology.** 6-1-3. Preq., consent of the instructor. An advanced study of the activities of antigens and antibodies.
- 513: Microbial Degradation.** 6-1-3. Preq., consent of the instructor. Utilization of materials as substrates for microbial activity with emphasis on mechanisms and control measures.
- 514: Advanced Applied Microbiology.** 3-2-3. Preq., consent of the instructor. Survey of the areas of applied microbiology emphasizing project approach.
- 520: Advanced Mycology.** 3-2-3. (Same as Botany 520). Preq., Bacteriology 350. Collection and identification of fungi; cultural techniques for specialized purposes.
- 525: History of Literature of Microbiology.** 0-3-3. Preq., consent of the instructor. Evolution of the field of microbiology and familiarization with the current literature of the field.

BIOMEDICAL ENGINEERING

- 100: Biomedical Engineering Orientation.** 3-0-1. Development of the field of Biomedical Engineering, including job opportunities, the Biomedical Engineering Curriculum, professionalism and ethics, dimensions and units, Biomedical Engineering analysis and design. W.Sp.
- 200: Biomedical Engineering.** 0-3-3. Science elective for nonengineering students. Emphasis is placed on the basis of interaction between the field of engineering and medicine and on recent developments in the application of biomedical engineering principles.
- 201: Principles of Biomedical Engineering.** 0-3-3. Preq., Chemistry 102, Zoology 111, 112, Biomedical Engineering 100, credit or registration in Mathematics 230. Basic qualitative and quantitative principles of biomedical engineering are presented. The general field of biomedical engineering is reviewed with respective fundamentals emphasized. Su,F,W,Sp.
- 210: Biomedical Engineering Instrumentation.** 3-2-3. Preq., Biomedical Engineering 201. Biomedical instrumentation techniques are presented in an applied manner. Basic circuitry, electronics, and laboratory techniques are explored. F,W,Sp.
- 301: Biomedical Fluid Mechanics and Biomedical Energy Transport.** 0-3-3. Preq., Biomedical Engineering 201. The principles of fluid mechanics and thermal energy exchange in living systems are presented from a quantitative viewpoint. W.
- 305: Rehabilitation Engineering Design.** 0-3-3. Preq., Biomedical Engineering 201 and Math 112, Engineering Mechanics 201, 301. The application of the engineering design process to the rehabilitation problems faced by handicapped persons. F.
- 310: Introduction to Clinical Engineering.** 3-2-3. A foundation course in medical and clinical terminology, medical instrumentation, medical sciences, hospital procedure and medical practice from an engineering perspective. F,Sp.
- 320: Bioenergetics.** 0-3-3. Preq., Mathematics 231 and Physics 201. The student is introduced to the concept of bioenergetics-the thermodynamics of living systems. The laws of thermodynamics are emphasized and applied to biological systems. Sp.
- 401: Biomedical Mass Transport.** 0-3-3. Preq., Biomedical Engineering 301. The transport of liquids, solids and gases between blood flowing through the organs of the body and the surrounding intercellular and intracellular tissue is presented. F.
- 402: Artificial Internal Organs and Biocompatible Materials.** 0-3-3. Preq., Biomedical Engineering 401. Optimum design, construction and operation parameters are presented and quantitative calculations are conducted. The biocompatibility of different materials is explored. W.
- 403: Physiological Control Systems.** 0-3-3. Preq., Mathematics 350. Feedback control mechanisms by which the human body maintains its internal environment are presented qualitatively and quantitatively. Sp.
- 405: Engineering Analysis of Physiological, Biochemical, and Anatomical Systems.** 0-3-3. A study of the basic life sciences with emphasis on biochemical, metabolic, and bioelectric concepts necessary to understand the major mammalian organ systems from an engineering perspective. F.
- 410: Clinical Engineering Internship.** 20-20-6. A practical exposure to the health care delivery system. Application of engineering principles to problems unique to that system. Su,F,W,Sp.
- 425: Advanced Biomedical Instrumentation Systems.** 3-2-3. Preq., Electrical Engineering 213, Biomedical Engineering 210 and Electrical Engineering 354 or consent. Applied Electronics for Biomedical Engineers. The practical aspects of ideal and real operational amplifiers, sequential and combinational digital integrated circuits and microprocessors. W.
- 440: Computer Applications for Biomedical Engineers.** 0-3-3. Preq., Mathematics 111 and 112. The course is designed specifically to train the student in the use of the digital computer for the solution of problems related to Biomedical Engineering.
- 501: Biotransport Phenomena.** 0-3-3. Chemical Engineering 511 or equivalent. The course is designed specifically for the application of the principles of transport phenomena to biomedical systems. Biomomentum, heat, mass, and electrochemical transport are presented.
- 502: Biotransport Phenomena.** 0-3-3. Preq., Biomedical Engineering 501. A continuation of Biomedical Engineering 501.
- 510: Bioinstrumentation.** 3-2-3. Preq., Permission of instructor. Advanced concepts and usage of biomedical instrumentation are reviewed. The actual construction and laboratory use of microelectrodes (PO₂, PCO₂, pH) are used for the investigation of microenvironments and online computer simulation is conducted.
- 520: Design of Artificial Internal Organs.** 0-3-3. Preq., Biomedical Engineering 402 or permission of instructor. Specialized design techniques and the various types of presently available artificial internal organs are reviewed. Recent developments and future needs are discussed.
- 525: Advanced Bioenergetics.** 0-3-3. Preq., BME 320 or permission of instructor. A study of the thermodynamics of irreversible processes in biophysical systems, including thermo-diffusion, thermal osmosis, transport of electrolytes, and models of active transport in tissue.
- 540: System Analysis and Mathematical Modeling of Physiological Phenomena.** 0-3-3. Preq., permission of instructor. The course deals with the analysis of biological systems and the theory behind the development and solution of mathematical models for the description of biological system behavior.
- 550: Special Topics.** 0-3-3. Preq., Permission of instructor. Selected topics dealing with advanced subjects in Biomedical Engineering.

BOTANY

- 101: General Botany.** 0-3-3. An introduction to the fundamental facts and principles of plant life. Su,F,W,Sp.
- 104: General Botany Laboratory.** 3-0-1. Preq., Botany 101 or concurrent enrollment. Basic investigations pertinent to plant life. Su,F,W,Sp.
- 205: Plant Anatomy.** 3-2-3. Preq., Botany 101. A comparative study and interpretation of the internal structure of vascular plants. W.
- 212: Wildlife Conservation and Management.** 0-3-3. An introduction to the wildlife resources of North America and their interrelations with other natural resources. F,W,Sp.
- 221: Taxonomy and Morphology of Early Vascular Plants.** 3-2-3. Preq., Botany 101. Survey of most primitive vascular plants through fern allies. F.
- 222: Taxonomy and Morphology of Ferns and Gymnosperms.** 3-2-3. Preq., Botany 221. Survey of ferns and gymnosperms. W.
- 223: Taxonomy and Morphology of Angiosperms.** 3-2-3. Preq., Botany 222 or consent of the instructor. Survey of the flowering plants. Sp.
- 225: General Science.** 0-3-3. A general course embracing the principles of the biological and physical sciences, designed especially for students who are preparing to become elementary teachers. Su,F,W,Sp.
- 320: Plant Ecology.** 3-2-3. Preq., Botany 220 and Botany 223. A study of plants and plant communities in relation to their environment. Sp.
- 330: Plant Pathology.** 3-2-3. Preq., Botany 101. A study of the nature of plant diseases and disorders. Sp.
- 345: Food Plants of Game Animals.** 3-2-3. Preq., Botany 223. Study of higher forms of land plants that supply food for game animals. F.
- 350: Mycology.** 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of fungi. W.
- 351: Phycology.** 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of algae. Sp.
- 405: Plant Physiology.** 3-2-3. Preq., Botany 101 and Chemistry 130. Study of life processes and functions of plants. F.
- 411: Nature Study.** 0-3-3. Preq., junior standing. A study of flowers, shrubs, trees, birds, and insects. This course is offered especially for elementary teachers. Su.
- 413: Economic Botany.** 0-3-3. Preq., junior standing. Principal plants of economic importance to man. Su.
- 415-416: Seminar.** 0-1-1 each. Preq., approval of the head of the department. A review of current literature and problems under investigation in plant science.
- 441-442-443: Wildlife Management Internship.** 3 hours credit each, 40 hours per week. Work experience in the use of the equipment, materials, and procedures in wildlife management.
- 505: Advanced Plant Physiology.** 3-2-3. Preq., Botany 220. Principles which underlie interpretation of the physical and metabolic processes of plants.
- 507: Advanced Plant Taxonomy.** 3-2-3. Preq., Botany 223 plus 12 additional hours of botany. Problems of nomenclature and recent concepts of plant classification.
- 508: Field Botany.** 3-2-3. Plant identification and the relation of plants to their environment, offered especially for elementary and secondary teachers.
- 515: Advanced Plant Ecology.** 3-2-3. Preq., Botany 320. An advanced study of vegetation units.
- 520: Advanced Mycology.** 3-2-3. Preq., Botany 350. Collection and identification of fungi; cultural techniques for specialized purposes.
- 525: Advanced Plant Anatomy.** 3-2-3. Preq., Botany 205. An advanced study of the internal structures of vascular plants.

- 535: History and Literature of Botany.** 0-3-3. Preq., consent of the instructor. Special assigned readings and reports.

BUSINESS LAW

- 355-356: Legal Environment of Business.** 0-3-3 each. Preq., junior standing. Legal environment of business including torts, government regulations, contracts, agency, sales, negotiable instruments, Uniform Commercial Code, and bankruptcy. Su,F,W,Sp.
- 441: Real Property.** 0-3-3. Preq., Business Law 355. Estates in land, titles, deeds, mortgages, leases, land contracts, minerals, easements and successions. F.
- 445: Legal Aspects of Government and Business.** 0-3-3. Preq., Business Law 355 or special permission of the instructor. A study of landmark law cases with special emphasis placed on guideline interpretive decisions of significance to management. W.

CHEMICAL ENGINEERING

- 100: Introduction to Chemical Engineering.** 3-0-1. An introduction to the Chemical Engineering Department, curriculum, and the profession. F,W.
- 202: Chemical Engineering Calculations.** 3-2-3. Preq., Chemistry 102, Credit or registration in Mathematics 230. Problems and recitation in material and heat balances involved in chemical processes. Application of chemical engineering and chemistry to manufacturing in chemical industries. W.
- 254: Laboratory Measurements and Report Writing.** 3-0-1. Preq., Chem. Engr. 202. A study of applied analytical procedures and measurement of process variables in chemical processing and an introduction to technical report writing. W,Sp.
- 301: Unit Operations.** 0-2-2. Preq., Chemical Engineering 202. Quantitative problems to develop the principles and applications of crushing, grinding, classification, size separation, fluid flow and fluid metering. F, Sp.
- 303: Unit Operations.** 0-2-2. Preq., Chemical Engineering 301. Quantitative problems to develop the principles and applications of heat transmission, evaporation, and crystallization. W.
- 306: Chemical Engineering Materials.** 0-2-2. Preq., Chemistry 102. A study of the basic principles which relate the properties of materials to their internal structures and environments; and of the behavior of materials in service. Su,F,Sp.
- 310: Elements of Chemical Engineering Processes.** 0-3-3. Preq., Chemistry 250. Application of principles of chemistry and physics to behavior of materials and their environmental stability. Polymer chemistry and physics. Survey of industrial chemical processes.
- 321: Chemical Engineering Thermodynamics.** 0-2-2. Applications of the laws of thermodynamics to chemical engineering process. F,W,Sp.
- 322: Chemical Engineering Thermodynamics.** 0-2-2. Preq., Chemical Engineering 321. Application of activity, fugacity and chemical equilibria to chemical engineering processes. W,Sp,Su.
- 351: Unit Operations Laboratory.** 3-0-1. Preq., Chemical Engineering 301. Laboratory work demonstrating the principles and applications of crushing, grinding, classification, size separation, fluid flow and fluid metering. W.
- 352: Unit Operations Laboratory.** 3-0-1. Preq., Chemical Engineering 303. Laboratory work demonstrating the principles and applications of heat transmission, evaporation and crystallization.
- 355: Chemical Engineering Problems.** 3-1-2. Preq., Math 350, Engineering 102 or Electrical Engineering 203, Chemical Engineering 301. An introduction to the formulation of mathematical models in chemical engineering; solution by analytical and numerical methods; introduction of analog computation.
- 401: Unit Operations.** 0-3-3. Preq., Chemical Engineering 303, Chemistry 311. Quantitative problems to develop the principles and applications of humidification, diffusion, distillation, absorption, and extraction. Sp.

- 402: Chemical Engineering.** 0-3-3. Preq., senior standing. Energetics and kinetics of homogenous and heterogenous reactions and introduction to corresponding reactor design considerations.
- 403: Transport Phenomena.** 0-3-3. Preq., Chemical Engineering 355, 401. Fundamental principles of momentum, energy, and mass transfer are developed. Emphasis is placed on systems analysis and mathematical description.
- 407: Instrumentation and Automatic Process Control.** 3-2-3. Preq., senior standing in engineering. Characteristics, limitations, and control of process variables by automatic instruments. Analog computer applications. W.
- 410: Industrial Waste Treatment.** 0-3-3. Methods of treating and/or disposal of industrial solid, liquid and gaseous wastes. Emphasis placed on fundamental physical, chemical and biological processes. Su,W.
- 412: Applied Problems in Chemical Engineering.** 0-3-3. Preq., junior standing. Methods of handling rate processes, graphical treatment of data, nomography and numerical analysis.
- 414: Industrial Radioactive Isotopes.** 3-2-3. Preq., junior standing. A survey of the industrial applications of radioactive isotopes. Basic concepts in nuclear physics, measurement techniques, radiation safety and instrumentation are presented. F,Sp.
- 420: Introduction to Nuclear Engineering.** 0-3-3. Preq., junior standing. An introduction to nuclear reactor technology. Engineering concepts in reactor design, fuel preparation, economics, shielding, instrumentation, construction and safety are presented. W.
- 421: Reactor Engineering.** 0-3-3. Preq., Chemical Engineering 420. Advanced concepts in nuclear reactor design. Mechanical and nuclear properties of solid and fluid reactor systems. Thermal and structural problems are presented. Sp.
- 424: Seminar.** 0-1-1. Open to seniors. Opportunity is offered for technical discussion, reading of assigned papers and informal presentations. Seminar further serves to bring the student abreast of current engineering thought. W,Sp.
- 432: Chemical Plant Design.** 0-2-2. Preq., senior standing in chemical engineering. Comprehensive problems are assigned, the solution of which enables one to calculate dimensions and capacities of required plant equipment. Computer applications. F.
- 434: Chemical Plant Design continued.** 3-1-2. Preq., Chemical Engineering 432. Su,W,Sp.
- 440: Theoretical Models in Engineering.** 0-3-3. The methodology of constructing, treating, and operating with theoretical models in order to draw objective conclusions concerning physical, chemical, and economic systems and interactions.
- 441: Advanced Engineering Computations.** 0-3-3. Preq., senior standing. Emphasis is placed on the digital, simulation computer solutions of mathematical models in engineering analysis, design, and operation.
- 442: Process Optimization.** 0-3-3. Preq., senior standing. An objective study of the present status of optimization methodology as applied to the chemical process industries. Both deterministic and non-deterministic systems are considered.
- 450:** 1-4 semester hours credit. Preq., senior standing and consent of instructor. Problems covering selected topics of current importance or special interest or need. S,F,W,Sp.
- 451: Unit Operations Laboratory.** 6-0-2. Preq., Chemical Engineering 401. Laboratory work in humidification, drying, distillation, absorption, extraction, and kinetics. F,W.
- 452: Special Projects Laboratory.** 3-0-1. Preq., senior standing in Chemical Engineering. Selected comprehensive problems. Study and/or laboratory development of: industrial unit operations; new chemical processes; improvement of established processes; economic evaluations. Theoretical studies. Su,W,Sp.
- 470: Sanitary Engineering Processes.** 2-0-2. Theory and techniques of physical and chemical processes used for water quality control. Topics considered include aeration, coagulation, flocculation, sedimentation, ion exchange, filtration, sorption, and chlorination. W.
- 501: Advanced Unit Operation.** 0-3-3. A more complete and advanced treatment of distillation than was possible in the undergraduate courses. Emphasis will be placed on equilibria, multicomponent systems, extractive distillation, and azeotropic distillation.
- 503: Advanced Heat Transfer.** 0-3-3. Radiation, conduction, and convection, condensation and fluid film correlations from fundamental laws of energy as applied to chemical engineering problems.
- 504: Advanced Chemical Engineering Kinetics.** 0-3-3. Homogeneous reactions. Catalytic reactions. Mass and heat transfer in catalytic beds. Catalytic reactor design. Uncatalyzed heterogeneous reactions.
- 505: Petroleum Refining.** 0-3-3. A study of the processing of petroleum. Polymerization, catalytic cracking, reforming, and other unit processes. Unit operations as applied to petroleum refining. Economics of refining operations.
- 509: Theoretical and Empirical Mass Transfer.** 0-3-3. The theory and empiricism of mass transfer as applied to equipment and process design and operation.
- 511: Transport Phenomena.** 0-3-3. Preq., Differential Equations. A course presenting a theoretical approach to the subjects of momentum transport, energy transport, and mass transport.
- 513: Transport Phenomena.** 0-3-3. Preq., Chemical Engineering 511. A course in which advanced concepts on momentum, energy, and mass transport are explored. Emphasis is placed on unsteady state behavior, turbulence, and recent developments in the literature.
- 515: Process Dynamics.** 0-3-3. Preq., Differential Equations. A course emphasizing the dynamic behavior of processes and processing equipment.
- 516: Advanced Process Dynamics and Automatic Control.** 0-3-3. Preq., Chemical Engineering 515. Advanced topics concerning stability, dynamics and control of complex processes are presented. Particular emphasis will be given to distributed parameter and non-linear systems. Special projects may be assigned.
- 522: Advanced Thermodynamics.** 0-3-3. The relations of thermodynamic properties are developed. Problems on the expansion and compression of non-gases, liquefaction, low temperature separation are studied.
- 524-525-526: Seminar.** 0-1-1 each. Surveys, investigations, and discussions of current problems in chemical engineering.
- 550: Special Problems.** 1-4 semester hours. Preq., consent of instructor. Selected topics dealing with advanced problems in chemical engineering and design of equipment. The problems and projects will be treated by current methods used in professional practice.

CHEMISTRY

- 101: General Chemistry.** 0-3-3. Coreq., Chemistry 103. Fundamental principles of chemistry. Su,F,W,Sp.
- 102: General Chemistry.** 0-3-3. Preq., Chemistry 101. Coreq., Chemistry 104. Continuation of Chemistry 101. Su,F,W,Sp.
- 103: General Chemistry Laboratory.** 4 1/4-0-1. Coreq., Chemistry 101. Laboratory practice in general chemistry. Su,F,W,Sp.
- 104: Qualitative Inorganic Analysis.** 4 1/4-0-1. Coreq., Chemistry 102. Continuation of Chemistry 103. Su,F,w,Sp.
- 111: Cultural Chemistry.** 0-3-3. A non-mathematical introductory course in chemistry for non-science majors.
- 120: General Chemistry.** 0-2-2. Fundamental principles of chemistry. F.
- 130: A Survey of Chemical Principles.** 0-3-3. Topics covered will include scientific units, states of matter, the electronic structure of atoms, the chemical bond, solutions, reaction kinetics, acid-base theory, and buffers.

- 131: An Introduction to Organic Compounds.** 0-3-3. Preq., Chemistry 130 or 102. An introductory study of nomenclature and properties of hydrocarbons, carbonyl compounds, amines, and carbohydrates. Not to be used as a prerequisite for advanced chemistry courses.
- 132: An Introduction to Biochemistry.** 4-3-4. Preq., Chemistry 131. Protein structure and function; metabolism of sugars and lipids; molecular biology of the gene. Not to be used as a prerequisite for advanced chemistry courses.
- 205: Quantitative Analysis.** 4 1/4-3-4. Preq., Chemistry 102 or 122. Theory and practice in gravimetric analysis for inorganic materials. Sp.
- 212: Radiochemistry.** 4 1/4-2-3. Preq., Chemistry 102 or 122. Fundamental principles of radiochemistry. Sp.
- 250: Organic Chemistry.** 0-2-2. Preq., Chemistry 102 or 122. Introduction to organic chemistry with emphasis on structure and reactivity. F,Sp.
- 251: Organic Chemistry.** 0-2-2. Preq., Chemistry 250; coreq., Chemistry 253. Continuation of Chemistry 250 with emphasis on aliphatic compounds and reaction mechanisms. Su,W.
- 252: Organic Chemistry.** 0-2-2. Preq., Chemistry 251; coreq., Chemistry 254. Continuation of Chemistry 251 with emphasis on aromatic compounds and reaction mechanisms. Su,Sp.
- 253: Organic Chemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 102 or 122; coreq., Chemistry 251. Basic techniques in organic chemistry. Su,W.
- 254: Organic Chemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 250 and 253; coreq., Chemistry 252. Introduction to organic syntheses. Su,Sp.
- 311: Physical Chemistry.** 0-3-3. Preq., Mathematics 231 and Physics 202 or 209. Basic theories of chemistry with emphasis on the atomic-molecular theory and thermodynamics. F,Sp.
- 312: Physical Chemistry.** 0-3-3. Preq., Chemistry 311. Basic theories of chemistry with emphasis on chemical thermodynamics, chemical kinetics, and electrochemistry. Su, W.
- 313: Physical Chemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 102 or 122. Laboratory experiments in physical chemistry. Sp,F.
- 314: Physical Chemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 311 and 313 and simultaneous registration in Chemistry 312. Continuation of Chemistry 313. Su,W.
- 351: General Biochemistry.** 0-3-3. Preq., Chemistry 102 or 122, plus Organic Chemistry. The chemistry of biologically important compounds including fats, carbohydrates, proteins, enzymes, vitamins, and hormones. F,Sp.
- 352: General Biochemistry.** 0-3-3. Preq., Chemistry 351. A continuation of Chemistry 351. Su,W.
- 353: Biochemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 102 or 122 plus Organic Chemistry; coreq., Chemistry 351. Techniques applicable to current biochemistry with emphasis on clinical procedures. F,Sp.
- 354: Biochemistry Laboratory.** 4 1/4-0-1. Preq., Chemistry 351 and Chemistry 353. Emphasis on techniques used in modern clinical chemistry laboratories with examples of various procedures used for quantitation of enzymes in biological fluids kinetic, ultraviolet, spectrophotometric, etc. W,Su.
- 381: Intermediate Organic Chemistry.** 4 1/2-2-3. Preq., Chemistry 252 and 254. A more advanced study of organic syntheses and organic qualitative analysis. Sp.
- 409: Advanced Organic Chemistry.** 0-3-3. Preq., Chemistry 252 and 312. A study of theoretical organic chemistry with emphasis on reaction mechanisms. F.
- 412: Biophysical Chemistry.** 0-3-3. Preq., Chemistry 311 and 352 or equivalent. Course topics include denaturation and multiple equilibria, hydrodynamics, and spectroscopy of macromolecules.
- 420: Chemical Thermodynamics.** 0-3-3. Preq., Chemistry 312. The thermodynamics of gases, solutions, galvanic cells, surface systems, and irreversible processes. An introduction to statistical thermodynamics and the estimation of thermodynamic functions from spectrographic data. W.
- 424: Advanced Physical Chemistry.** 0-3-3. Chemistry 312 or Physics 410 and Mathematics 350. A continuation of Chemistry 311-312, including the study of structure of atoms and molecules, and introduction to statistics, and selected topics in modern physical chemistry. F.
- 461: Clinical Biochemistry.** 0-3-3. Preq., Chemistry 352. A survey of metabolic chemistry emphasizing research techniques, terminology, methods of disease diagnosis and management, and other advances related to clinical biochemistry.
- 462: Toxicology.** 0-3-3. Preq., Chemistry 352. A study of the harmful actions of chemicals on biological tissues including the identification and management of toxic effects.
- 466: Analytical Chemistry.** 8 1/2-2-4. Preq., Chemistry 312. Theory and practice of optical methods of analysis, advanced electrical techniques, and modern separation methods. Sp.
- 481: Advanced Inorganic Chemistry.** 0-3-3. Preq., Chemistry 252, 312. An advanced study of the periodic classification of elements, their reactions, and other inorganic principles. Sp.
- 490: Chemistry Seminar.** 0-1-1-3. Preq., Senior or graduate standing. Required of senior chemistry majors and graduate students. Supervised organization and presentation of topics from the chemical literature. F,W,Sp.
- 501: Physical Organic Chemistry.** 0-3-3. Preq., Chemistry 409. A study of the mechanisms of reactions and the methods used in their investigation.
- 502: Selected Topics in Organic Chemistry.** 0-3-3 (6). Preq., Chemistry 252, 312. Areas covered will vary and may include organic spectroscopy and reaction mechanisms.
- 504: Chemistry of Heterocyclic Compounds.** 0-3-3. Preq., Chemistry 252.
- 520: Molecular Spectroscopy.** 0-3-3. Preq., Physics 202 plus Physics 430, Chemistry 252, 312. The relationship between molecular spectra and molecular structure. Use is made of quantum mechanics and group theory.
- 523: Special Topics in Physical Chemistry.** 0-3-3. Preq., Chemistry 312. Topics will vary and will include kinetic theory of gases, molecular structure, phase rule, photochemistry, nuclear chemistry, chemical kinetics, or statistical thermodynamics.
- 524: Quantum Chemistry.** 0-3-3. Preq., Chemistry 312 or Physics 430. Physical and chemical applications of quantum theory.
- 554: Chemistry of Microorganisms.** 0-3-3. Preq., Chemistry 352 or 252. Composition, metabolism, and nutrition of microorganisms with particular emphasis on antibiotics, microbiological assays and immunology.
- 555: Special Topics in Biochemistry.** 0-3-3 (9). Preq., Chemistry 352. Areas covered will vary and may include toxicology, clinical biochemistry, biophysical chemistry and clinical internship.
- 556: Protein Chemistry.** 0-3-3. Preq., Chemistry 352 or 252. The chemical nature and physiology of both structural and metabolic proteins; their purification, isolation, synthesis, and identification.
- 563: Advanced Analytical Chemistry.** 0-3-3. Preq., Chemistry 465, 466, and 312. Theoretical aspects of the optical, chemical and separation techniques of analytical chemistry.
- 584: Chemistry of Coordination Compounds.** 0-3-3. Preq., Chemistry 481. A study of the structure, preparation, and properties of coordination compounds.
- 585: Inorganic Preparations.** 8 1/2-0-2. Preq., Chemistry 481 or concurrent enrollment. A correlation between inorganic principles and theory and laboratory techniques for the preparation of inorganic compounds.

CIVIL ENGINEERING

- 100: Introduction to Civil Engineering.** 3-0-1. A survey of topics to introduce the student to the profession, the department and the curriculum. F.

- 250: Surveying Fundamentals.** 2 Sem. Hrs., meets 8 to 5 daily *first 2 weeks, Summer only. (Not open to students who have credit in Civil Engineering 254.)* Preq., Mathematics 112. Introduction to surveying principles and use of surveying equipment. Su.
- 251: Land Surveying.** 4 Sem. hrs., meets 8 to 5 daily for 4 weeks following Civil Engineering 250. Preq., Civil Engineering 250. Topographical surveys, mapping, traversing, public land surveys, computer methods, construction surveying, practical application problem. Su.
- 252: Intermediate Surveying.** 3 Sem. hrs., meets 8 to 5 daily using an integrated schedule with CE 253 for 6 weeks following Civil Engineering 251. Preq., Civil Engineering 251 and registration in Civil Engineering 253. State Plane coordinate systems, legal descriptions, curves and earthwork, practical application problem. Su.
- 253: High Precision Surveying.** 3 semester hours, meets 8 hours daily using an integrated schedule with CE 252 for 6 weeks following Civil Engineering 251. Preq., Civil Engineering 251 and registration in Civil Engineering 252. Astronomical observations, triangulation and trilateration, EDM methods, precise traversing and leveling, practical application problem. Su.
- 254: Plane Surveying.** 8-2-4. Preq., Mathematics 112. Theory, field measurements, and computation, and error analysis associated with land, traverse, and topographic surveys. Sp.
- 300: The Civil Engineering Profession.** 0-3-3. Preq., junior standing. The civil engineering profession and its effect on society. History and heritage, current professional practices and techniques, concepts and challenges for the future. Sp.
- 302: Engineering Materials.** 4-2-3. Preq., credit or registration in Engineering Mechanics 311. Mechanical behavior of engineering materials, determination of strength and other properties of materials, conventional and true stress-strain, failure mechanisms. F.
- 304: Remote Sensing.** 4-1-2. Preq., Mathematics 112. Basic introduction to remote sensing. Measurements and mapping from aerial photographs. Photo interpretation. Height determination by parallax. F,Sp.
- 310: Hydrology.** 0-2-2. Preq., Engineering Mechanics 321 or senior standing. The occurrence and movement of water on and below the surface of the earth. Precipitation, runoff and stream flow; infiltration and ground water. W.
- 314: Environmental Engineering.** 3-3-4. Preq., Civil Engineering 391 and Chem. 104. Introduction to principles of water and waste water treatment, air pollution and public health engineering. Sp.
- 324: Soils and Foundation Engineering.** 4-2-3. Preq., Engineering Mechanics 311 and Geology 317. Introduction to soil mechanics and its application in civil engineering. The exploration and soil testing programs required for the design of various engineering structures. F.
- 332: Transportation Engineering.** 0-3-3. Preq., Engineering Mechanics 211. Introduction to transportation facilities; urban transportation planning; land, air, and water transportation facilities; future developments in transportation. W.
- 346: Theory of Simple Structures.** 0-3-3. Preq., Engineering Mechanics 311 and Engineering 102 or equivalent. Shear and bending moment diagrams, truss analysis, influence lines, moving loads, three-moment equation, determinates, computer methods. Sp.
- 391: Hydraulics.** 4-1-2. Preq., Engineering Mechanics 321. Elements of flow in open channels and in pipelines; general fluid mechanics laboratory; fluid measurements; and hydraulic models. W.
- 400: City Planning.** 0-3-3. Preq., junior standing. Objectives and main elements of a master plan for an urban community. Special physical, social, legal, economic and administrative problems of villages and metropolitan areas.
- 413: Water Resources Design.** 3-2-3. Preq., Civil Engineering 310 and 314. Design of water supply and pollution control facilities.
- 415: Water Resources Practices.** 0-3-3. Preq., Civil Engineering 314. Introduction to water resources management, natural man modified resource systems. Water management legislation and introduction to water resources economic analysis.
- 416: Hydraulic Facilities Design.** 0-3-3. Preq., Civil Engineering 391. Basic concepts of open channel flow. Computation of uniform and non-uniform flow. Hydraulic design of spillways, stilling basins, canals, transitions, culverts, and bends.
- 417: Groundwater Hydrology.** 0-3-3. Preq., Civil Engineering 310. Groundwater occurrence, movement and quality, well hydraulics, basin development, and model studies.
- 424: Seminar.** 0-1-1. Open to seniors. Opportunity is offered for discussion, reading of assigned papers, informal talks by instructors and professional engineers, debates on matters of current interest. F,Sp.
- 425: Traffic Engineering.** 0-3-3. Preq., Civil Engineering 332. Traffic characteristics, vehicle operating characteristics, traffic control, and design of traffic facilities. Basic traffic studies, capacity, signing and signalization, speed regulation and parking.
- 427: Design of Highway and Airport Pavements.** 0-3-3. Preq., Civil Engineering 332. Flexible and rigid pavement types. Factors affecting stresses and strains in pavement layers. Design criteria and structural design methods for highway and airport pavements.
- 433: Land Surveying.** 0-3-3. Legal principles and terms related to the establishment of real property boundaries. Property descriptions and layout, mineral claims. W.
- 437: Contracts and Specifications.** 0-2-2. Preq., junior standing or consent of instructor. Legal documents of construction contracts.
- 438: Estimating.** 0-3-3. Preq., senior standing or consent of instructor. Types of estimates. Material takeoff from blueprints and specifications. Detailed estimates of labor and materials. Approximate estimates. W.
- 439: Planning and Scheduling Engineering Projects.** 0-2-2. Preq., senior standing or consent of instructor. A study of methods used for planning, estimating, and controlling engineering projects.
- 440: Foundation Engineering.** 0-3-3. Preq., Civil Engineering 324 or consent of instructor. Theory and applications in foundation engineering design; application of soil mechanics.
- 441: Advanced Geotechnical Engineering Problems.** 0-3-3. Preq., Civil Engineering 324. Theory and applications of site and soil improvements; design and construction of underground facilities; tunneling and tunneling machines.
- 443: Analysis of Continuous Structures.** 0-3-3. Preq., Civil Engineering 346 and Math 308. Slope-deflection, moment distribution plastic design, matrix applications, STRUDL computer language.
- 444: Reinforced Concrete.** 0-3-3. Preq., Civil Engineering 346. Principles underlying the design of integral parts of reinforced concrete structures: beams, girders, slabs, columns, retaining walls. Ultimate strength design. W.
- 446: Indeterminate Structures.** 0-3-3. Preq., Civil Engineering 443, or consent of instructor. Analysis of indeterminate structures. Conjugate beam, virtual work, Castiglione's method, influence lines by Muller-Breslau. Truss deflections by the Williot-Mohr method. Use of matrices in structural analysis.
- 447: Prestressed Concrete Structures.** 0-3-3. Preq., Civil Engineering 444. Materials and prestressing systems; analysis and design of sections for flexure, shear, bond, and bearing; beam deflections and layout. Continuous beams.
- 448: Computer Methods in Structural Analysis.** 0-3-3. Preq., Civil Engineering 443 or consent of instructor. Matrix formulation of structural analysis problems. Solution of problems using digital and analog computers.
- 449: Computer Methods in Foundation Engineering.** 0-3-3. Preq., Civil Engineering 440. Computer solutions for spread and combined footings, mat foundations, retaining walls and pile foundations.

450: Special Problems. 1-4 hours credit. Preq., senior standing and consent of instructor. Planning, organization, and solution of problems in Civil Engineering. Su,F,W,Sp.

465: Structural Design and Theory. 0-3-3. Preq., Civil Engineering 346. Design of members and connections in metals and timber.

501: Frame Analysis. 0-3-3. Preq., Civil Engineering 443. Analysis of single story and simple multi-story frames by moment distribution methods, applications of slope deflection methods, study of frames containing variable section members, plastic methods of structural analysis.

502: Computer Methods of Structural Analysis. 0-3-3. Preq., Civil Engineering 448. Matrix formation of structural analysis problems. Force method and displacement method for trusses, beams and frames. Solution of problems using electronic computers.

503: Advanced Reinforced Concrete. 0-3-3. Preq., Civil Engineering 444. Advanced reinforced concrete theory, including such topics as flat slabs, combined stresses, critical study of specifications.

505: Plastic Analysis and Design. 0-3-3. Preq., Civil Engineering 465. Analysis of steel structure behavior beyond the elastic limit. Concept of design for ultimate load and the use of load factors. Analysis and design of component parts of frames. Methods of predicting strength and deformation behavior of structures loaded in the plastic range. Bracing and connecting requirements for frames.

510: Advanced Soil Mechanics. 0-3-3. Preq., Civil Engineering 324. Evaluation of subsoil conditions, theory of consolidation and bearing capacity of soils; selection application and design of foundation elements of structures.

526: Advanced Hydrology. 0-2-2. Preq., Civil Engineering 310 or consent of instructor. Conceptual hydrograph models. The hydrology of spillway design, study of model water sheds. The hydrologic design of a small reservoir will be a required project.

530: Water Quality Improvement. 3-2-3. Preq., Civil Engineering 314 or 418 or consent of instructor. Stream self-purification processes. Pollution abatement methods. Industrial waste surveys. Principles of treatment for domestic and industrial wastewaters.

535: Water Supply Systems. 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of water supply, treatment and distribution system.

536: Wastewater Disposal Systems. 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of domestic and industrial waste treatment systems.

542: Hydraulic Engineering. 0-3-3. Preq., Engineering Mechanics 321 or Civil Engineering 391. Types and classes of pumps. Characteristics and selection of pumps, turbines, pump-pipe systems, including pump curves in parallel and series, and parallel piping systems. Pressure waves and pressure relief systems, cavitation.

550: Special Problems. 1-4 hours credit. Advanced problems in civil engineering will be assigned according to the ability and requirements of the student. An opportunity will be afforded to plan, organize, and complete solutions in problems of considerable magnitude with a view toward developing confidence and self reliance.

CIVIL TECHNOLOGY

102: Introduction to Engineering Technology. 3-0-1. An introductory study of the characteristics and "tools" of the field of engineering technology: engineering calculations, visual presentation of data, technical reporting and the fundamental steps of engineering design.F.

210: Basic Hydraulics. 4-2-3. Preq., Civil Technology 206. Physical phenomena of hydraulics with application of the fundamental laws and empirical formulae. Pressure forces on submerged areas, buoyancy, flow in closed conduits and open channels and fluid measurements. F.

257: Practical Surveying. Three semester hours. Preq., Civil Engineering 253. An on-the-job training program where the student is employed by a registered surveyor for a minimum period of 300 working hours in a program of work approved by the department head. Open to Land Surveying Technology students only. F.

271: Structural Materials and Concepts. 0-3-3. A study of structural materials and how they are used to form load bearing structures. Primarily for students of architecture. Not open to civil engineering majors. F.

273: Construction Surveying. 8-1-3. Preq., Math 112. Use of surveying equipment for layout of construction projects. Not open to students who have had CE 254.F.

341: Construction Equipment and Methods. 0-3-3. Construction procedures and equipment, selection and efficient use of equipment.

343: Construction Management. 0-3-3. Coreq., Civil Technology 345. A study of all aspects of construction management which contribute directly to the successful accomplishment of a project. Organization, planning and scheduling, with emphasis on CPM and PERT.

345: Construction Blueprint Reading. 3-0-1. Concurrent with Civil Technology 343. Blueprints for heavy timber, steel, and reinforced concrete construction are presented. Emphasis is on extraction of information necessary for the planning of the construction process.F.

372: Structural Analysis. 0-3-3. Preq., Civil Technology 271 and Engineering Mechanics 207 or 301 or 311. Theory and practice of the analysis and design of structures and their components. Not open to civil engineering majors. W.

373: Construction Materials. 4-0-1. Preq., CE 371 and Engr. Mech. 207 or 301 or 311. Study and practice of methods for determination of strength and other properties of construction materials. Not open to civil engineering majors.

471: Reinforced Concrete and Foundation Design. 0-3-3. Preq., Civil Tech. 372. Analysis and design of reinforced concrete structures, slabs, footings, caissons and pile foundations. Not open to civil engineering majors. F.

473: Design of Structures. 3-2-3. Preq., Civil Tech 372. Design of elementary structures in timber and steel.W.

474: Structural Systems. 0-3-3. Preq., Civil Tech 471, 472. A comparison of structural systems using mathematical and physical models. Sp.

475: Soils in Construction. 3-2-3. Preq., Civil Technology 207. The nature of soils, earthwork in construction and soils testing methods.

COMPUTER SCIENCE

102: Introduction to Computing Laboratory. 0-3-3. Programming in higher level languages with emphasis on numerical algorithms using the FORTRAN language. Su,F,W,Sp.

104: Introduction to Computing Laboratory. 0-2-2. Programming in a higher level language (COBOL) with emphasis on non-numerical algorithms. F,W,Sp.

106: Programming with PL/1. 0-2-2. Preq., Computer Science 104. Problem analysis, algorithm development, data and control structures, and interpretation of results, with emphasis on character string and text processing applications. Su,F,W,Sp.

190: FORTRAN IV Programming. 0-1-1. Computer programming using the FORTRAN (FORmula TRANslator) compiler language. Designed to provide a comprehensive background in scientific oriented programming.

191: COBOL Programming. 0-1-1. Computer programming using the COBOL (COmmon Business Orientated Language) compiler language. Designed to provide a comprehensive background in business oriented programming.

194: Simulation Programming. 0-1-1. Computer programming using the simulation language of G.P.S.S. (General Purpose Simulation System). Designed to provide a comprehensive background in using the computer to simulate real systems.

- 201: Information Processing.** 0-2-2. Preq., Computer Science 102, 104 and 106. Principles and application of digital computers in solution of data reduction, information retrieval, and large scale data processing problems. F.W.Sp.
- 206: Introduction to Computing Laboratory.** 3-0-1. Preq., Computer Science 201. Functional characteristics of digital computer and assembly language. W.
- 214: Systems Programming.** 0-3-3. Preq., Computer Science 201 and 206. Assembly systems with macro facilities, program segmentation and linkage considerations, system data management services, program design and debugging facilities. W.Sp.
- 303: Introduction to Discrete Structures.** 0-2-2. Preq., Computer Science 214 and Mathematics 308. Topics from mathematical logic that relate to Computer Science, introduction to combinatorics and graph theory; turing machines and Markov algorithms. F.
- 424: Seminar.** 0-1-1. Preq., senior standing in Computer Science. Preparation and presentation of reports on projects and topics relating to Computer Science. Sp.
- 450: Information Structures.** 0-3-3. Preq., Computer Science 214 and 303, or consent of the instructor. Relations between data, storage media and processing systems; storage allocation; list structures; ordering techniques. W.
- 451: Language and Compilers.** 0-3-3. Preq., Computer Science 214 and 303, or consent of instructor. Formal definition of programming languages; assembler and compiler theory; runtime representation of program and data structures. F.
- 452: Systems: Hardware.** 0-3-3. Preq., Computer Science 214 and 303, or consent of instructor. Digital computer system architecture; microprogramming concepts; individual design and simulation of a simple computer.Sp.
- 453: Systems: Software.** 0-3-3. Preq., Computer Science 450, 451, and 452 or consent of instructor. Systems programs; components, characteristics, limitations, I/O processing; interrupts; multiprogramming, multiprocessing configurations; systems control. W.
- 460: Computer Systems Engineering.** 0-3-3. Preq., Computer Science 453, or consent of instructor. Interaction of hardware, software and personnel in computing systems; evaluation of system components; information processing systems engineering. Sp.
- 461: Data Base Systems.** 0-2-2. Preq., Computer Science 450 or consent of instructor. Concepts of data design; efficient file organization; maintenance, and processing; implementation of a simple data base. F.
- 462: Problem Oriented Languages.** 0-2-2. Preq., Computer Science 451 or consent of instructor. Principles of design of languages oriented to solution of a particular class of problems; design and implementation of a simple language. W.
- 490: Applied Computing Project.** 0-1-1- (3). Preq., junior standing in Computer Science or equivalent. Independent investigation of a problem in computing. F,Sp.
- 511: Design and Construction of Compilers.** 0-3-3. Preq., Computer Science 451, or consent of instructor. Formal description of programming language translation; syntax recognition; parsing and code generation; specification and implementation of a simple language.
- 521: Computer Systems Organization.** 0-3-3. Preq., Computer Science 452 or consent of instructor. Realization of recent development in computer systems design; multi-processor and highly parallel organizations; input/output devices.
- 524: Distributed Systems.** 0-3-3. Preq., Computer Science 450, or consent of instructor. Overview of distributed processing and introduction to computer networks; issues involving processors communications, interconnections, software and system management.
- 534: Performance Measurement and Evaluation.** 0-3-3. Preq., Computer Science 453, or consent of instructor. Computer systems performance analysis techniques; data acquisition methods; simulation techniques; interpretation of results.

- 531: Systems Programming.** 0-3-3. Preq., Computer Science 521 or consent of instructor. Programmed control of resource allocation and scheduling; device and data control, multiprogrammed and multiprocessor configurations.
- 540: Systems Design.** 0-3-3. Preq., Computer Science 460 or consent of instructor. Design and implementation of information systems; post-implementation analysis and evaluation; documentation and technical reporting.
- 547: Hybrid Systems.** 0-3-3. Preq., Computer Science 452 and Computer Science 453, or consent of instructor. Programmed monitoring and control of external processes by sensor-based digital computers; system hardware and software requirements; applications.
- 550: Special Problems.** 1-4 semester hour credit. Individual research and investigation of a problem in computer science or computing practice.

COUNSELING

- 400: Introduction to Counseling.** 0-3-3. Introductory course for professional workers. Includes purposes and scope of counseling service, concepts, principles and basic techniques of counseling. F,Sp.
- 401: Student Personnel Services.** 0-3-3. A study of student personnel programs in colleges and universities.
- 460: Behavioral Counseling.** 0-3-3. A non-cognitive approach to counseling that presents the necessary attitudes, concepts, principles, and skills for individual counseling.
- 500: Principles and Administration of Guidance Services.** 0-3-3. A study of current practices in the development, organization, administration, and supervision of the various types of guidance services.
- 505: Analysis of the Individual.** 3-2-3. Preq., Psychology 300 or equivalent. This course is designed to offer the student an orientation to psychological testing procedures, their evaluation, and use in the analysis of students.
- 508: Introduction to Counseling Theories.** 0-3-3. A detailed study of the best known schools of counseling theory, implemented by case studies in educational and vocational counseling.
- 513: Education and Occupational Information.** 0-3-3. A study of the sources and the uses of educational and occupational information in the counseling program.
- 514: Career Education: Vocational Guidance.** 0-3-3. A critical examination of sources of information to determine labor trends and employment requirements.
- 515: Career Education: Orientation of the World of Work.** 0-3-3. A study of the nature, scope and rationale for occupational information in the elementary school.
- 516: An Introduction To Group Processes.** 0-3-3. A course designed to acquaint the students with group and to lay foundations for leadership roles in human problem solving.
- 518: Techniques of Counseling.** 3-2-3. Preq., Counseling 508. Provides lab experience in counseling and interview analysis. Lab experiences shall include techniques appropriate to the varied counseling theories.
- 519: Advanced Theories in Counseling.** 0-3-3. Preq., Counseling 508. Further analysis of theories of counseling as is evidenced by a review of current counseling literature.
- 520: Case Studies in Counseling.** 1-3 hours credit. Preq., Counseling 508. Preparation of individual counseling research and case studies to be used in reviewing, analyzing, and evaluating applications of counseling theory.
- 521: Seminar: Current Psychological Literature.** 1-3 hours credit. Students are required to do extensive reading on selected topics in the areas of employment, vocational, and rehabilitation counseling or selected areas of psychology.
- 522: Field Work in Counseling.** 8-0-3. For non-school counselors. Study, observation, and practice in selected employment settings; integration of theory and practice through supervision of

experience, seminars, and individual conferences. May be repeated for credit.

- 523: Elementary School Guidance.** 0-3-3. A review of the principles and organizational patterns of guidance services at the elementary school level.
- 525: Advanced Techniques of Counseling.** 3-2-3. Preq., consent of instructor. Provides lab experiences in advanced counseling techniques appropriate to various counseling theories.
- 526: Problems in Guidance.** 5-1-3. Special conferences, workshops, and seminars as requested by elementary and secondary school personnel. May be repeated for a maximum of 6 hours credit.
- 527: Addiction Counseling.** 0-3-3. An introduction to the field of Addiction Counseling. Emphasis is placed on recognition and identification of the addicted as well as basic treatment techniques.
- 528: Advanced Addiction Counseling.** 3-2-3. Preq., Counseling 527. A methods course intended to equip the student with a basic conception of various therapeutic modalities.
- 530: Practicum.** 5-1-3. Open only by invitation. Supervised professional activity in the student's major field.

DAIRYING

- 301: Testing Dairy Products.** 3-2-3. Preq., Animal Science 102. A chemical and bacterial test of milk and milk products. W, even.
- 310: Market Milk.** 3-2-3. Preq., Animal Science 102 and Bacteriology 210. The sanitary production, transportation, processing, distribution, and public health inspection of milk and related products. Sp, even.
- 318: Ice Cream.** 3-2-3. Preq., Dairying 310. The manufacture of ice cream and frozen dairy products. W, odd.
- 322: Butter and Cheese.** 6-1-3. Manufacture of butter and various types of cheese. Defects, packaging, and merchandising of butter and cheese. Sp, odd.
- 430: Dairy Plant Management.** 6-1-3. The management problems of dairy processing and manufacturing plants.

ECONOMICS

- 100: Current Economic Issues.** 0-3-3. Analysis of contemporary issues, emphasizing an introduction to the most important concepts in elementary economics. F,W,Sp.
- 200: American Industrial Development.** 0-3-3. A survey of the growth and development of the American economy. Su,F,W,Sp.
- 201-202: Economic Principles and Problems.** 0-3-3 each. (Not open to students who have had Economics 203-204-205.) A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. Su,F,W,Sp.
- 215: Fundamentals of Economics.** 0-3-3. (Not open to students who have had Economics 203-204-205 or 201-202.) A survey of the major principles of economics designed for the student whose curriculum requires only one quarter of economic principles. Su,F,W,Sp.
- 312: Monetary Economics.** 0-3-3. Preq., Economics 202 or 215. A study of the causes of changes in the supply of money and rate of spending and the effects of these changes on production, employment and the price level. Su,F,W,Sp.
- 320: Principles of Agricultural Economics.** 0-3-3. Preq., Economics 202 or 215. Economic theory with applications to production, marketing, and financing in agribusiness. Institutions such as cooperatives, farm credit systems, foreign agricultural trade, and government will be emphasized. Sp.
- 330: World Economic Resources.** 0-3-3. Preq., Economics 202 or 215. A study of the economic resources involved in the various regions of the world, including extractive, manufacturing, service industries.
- 344: International Economics.** 0-3-3. Preq., Economics 201 or 215 or consent of instructor. Introduction to modes of business operations and the economic factors which affect international trade. Study of principles, practices, and theory of how and why nations trade.
- 401: History of Economic Thought.** 0-3-3. Preq., Economics 202 or 215. Introduction to theorists who have contributed to the understanding of economic principles.
- 402: Economics of Farm Management.** 0-3-3. Economics principles applied to individual farm organization and management and study of farm accounting systems. F.
- 406: Comparative Economic Systems.** 0-3-3. Preq., Economics 202 or 215. A study of alternative economic systems such as capitalism, socialism, communism, and "mixed" in theory and practice. W.
- 408: Intermediate Economic Theory.** 0-3-3. Preq., Economics 202 or 215, or consent of instructor. Microeconomics; intensive study of price, production, and distribution theories. Su,W.
- 409: Managerial Economic Analysis.** 0-3-3. Preq., senior standing or consent of instructor. Lectures and cases emphasizing economic principles as used in managerial decision-making. Includes analysis of demand, cost and price relationships, price decisions, risk and uncertainty, and capital investment. F,Sp.
- 410: Public Finance.** 0-3-3. Preq., Economics 202 or 215. An introduction to the principles and theory of financing local, state, and federal governments. W.
- 411: Mathematical Economics.** 0-3-3. Preq., Mathematics 222 or Economics 408. Application of mathematical techniques to economic problems of price and output determination, input utilization, and national income. F.
- 418: Labor Economics.** 0-3-3. Preq., Economics 202 or 215 or consent of the instructor. Fundamentals of labor market operations, economic analysis of labor legislation; impact of American unions upon the firm's decision making and the national economy. F,Sp.
- 419: Collective Bargaining.** 0-3-3. Preq., Economics 202 or 215 or consent of instructor. History of American labor union movement; collective bargaining, labor-management problems, and government and labor relations. Considerable emphasis is given to case studies. Su,W.
- 430: Principles and Practices of Agricultural Marketing.** 0-3-3. Methods and channels of agricultural marketing; marketing principles; governmental action concerned with the marketing process; analysis and evaluation of marketing problems. W.
- 437: Aggregate Economic Analysis.** 0-3-3. Preq., Economics 312. Macro-economics; intensive study of economic theory of national income analysis, economic growth, interest, employment, and fiscal policy. F,Sp.
- 446: Transportation.** 0-3-3. (Same as Management 446.) Development of domestic transportation systems, rate theory and rate-making practices; principles and practices of transport regulation by governmental agencies.F.
- 448: Economic Development.** 0-3-3. Preq., Economics 202 or 215. Analysis of the theories and problems of economics development.
- 449: Latin America: Business and Economic Development.** 0-3-3. International trade, international business and economic patterns in Central and South America. Selected issues of major current importance and their backgrounds.
- 450: Selected Topics in Economics.** 0-3-3- (9) . Preq., consent of the instructor. Various topics in the field of economics.
- 472: Consumer Economics.** 0-3-3. Nature of consumer demand; management of individual consumer purchases and personal finances.
- 510: Managerial Economics.** 0-3-3. Analysis and cases; actual case studies in the application of price and distribution theory to problems of the firm.
- 512: Current Economic Policies.** 0-3-3. An investigation of modern economic concepts in the United States through a study of policies advanced by various economic groups tending to shape economic action.
- 513: Macroeconomic Theory I.** 0-3-3. Preq., Economics 437 or other acceptable background course (s) . Analysis of monetary factors and government revenue-expenditure factors affecting

the general level of prices, investment decisions, interest rates, national income, and employment.

- 520: Advanced Microeconomic Theory.** 0-3-3. Preq., Econ 408 or other acceptable course(s). Value and distribution theory emphasizing applications to business operations and public policy issues.
- 532: Econometric Methods.** 0-3-3. (Same as Quantitative Analysis 532). Preq., Quantitative Analysis 432 or other acceptable courses. The use of statistical techniques in economic research including estimation and interpretation of parameters of micro and macro economic models.
- 540: Macroeconomics: Business Conditions Analysis.** 0-3-3. Preq., Econ 510. Detailed review of techniques, procedures and data sources used by business economists to gather, analyze, interpret, and forecast macroeconomic variables.
- 541: Microeconomics: Business Conditions Analysis.** 0-3-3. Preq., Econ 510. Detailed review of techniques, procedures, and data sources used by business economists to gather, analyze, interpret and forecast microeconomic variables.
- 542: Seminar on Business Economics Problems.** 0-3-3. Preq., Econ 510 or consent of Instructor or equivalent. Students will develop and present an analytical study in micro- or macroeconomics in a form expected of a business economist's presentation to corporate management.

EDUCATION

- 101: Orientation.** 0-1-1. Basic rules, policies, history, and organization of the University with special application to education. Su,F,W,Sp.
- 102: Reading Skills for College Freshmen.** 9-0-3-(9). The course provides individually prescribed instruction in reading skills for college freshmen. The course objective is to help alleviate reading deficiencies which inhibit effective learning. Non-degree credit. F.
- 200: Introduction to Education.** 3-2-3. Designed to give the future teacher an understanding of the problems, requirements, and opportunities of the profession. Su,F,W,Sp.
- 300: Driver Education and Highway Safety.** 0-3-3. Investigation of the problems facing drivers, traffic design problems, and the study of the philosophy of driver education. F.
- 320: Methods and Materials for Elementary Science and Social Studies.** 0-3-3. Preq., Education 380. A course for the study of curriculum, organization and teaching in elementary science and elementary social studies. Su,F,W,Sp.
- 322: Materials and Methods of Teaching Mathematics In Elementary Schools.** 0-3-3. Preq., Education 380. An examination of the characteristics and objectives of the modern elementary mathematics program combined with experiences in content, methods, and organizations. Su,F,W,Sp.
- 323: Materials and Methods in Language Arts for the Elementary Schools.** 0-3-3. Preq., Education 380. A course to enable students to use current principles, research, methods and materials to teach oral, written and reading communication skills. Su,F,W,Sp.
- 324: Methods and Materials in Teaching Reading in Elementary Schools.** 0-3-3. Preq., Education 380. Principles, methods, and research pertaining to the teaching of reading will be emphasized. Su,F,W,Sp.
- 350: Materials and Methods in Teaching English.** 0-3-3. Preq., Education 380. The student will be introduced to the best techniques of organizing and presenting English material. W.
- 351: Materials and Methods in Teaching Modern Language.** 0-3-3. Preq., 12 hours of modern languages and Education 380. The student will be introduced to the latest techniques of organizing materials and presenting them to high school pupils. W.
- 352: Materials and Methods in Teaching Science.** 0-3-3. Preq., Education 380. A careful examination of the most advanced methods of organizing and presenting materials in sciences for the secondary school. W.
- 353: Materials and Methods in Teaching Social Studies.** 0-3-3. Preq., Education 380. An examination of the character and purpose of social studies is followed by presentation of appropriate teaching suggestions. W.
- 354: Materials and Methods in Teaching Speech.** 0-3-3. Preq., Education 380. An examination of materials and methods for teaching speech in elementary and secondary schools. W.
- 355: Materials and Methods in Speech, Language and Hearing in the Public Schools.** 0-3-3. Practical problems in the identification, diagnosis, and treatment of communication disorders in school children, with emphasis on materials, organization of therapy program and teaching procedures.
- 356: Materials and Methods in Teaching Mathematics.** 0-3-3. Preq., Education 380 and Mathematics 230. The nature of mathematics and methods of teaching. Special emphasis will be placed on the interpretation and solving of reading problems. W.
- 357: Materials and Methods in Teaching Health and Physical Education.** 5-2-4. Preq., Education 380. To introduce students to the latest materials and methods used in teaching health and physical education. F,W,Sp.
- 360: Materials and Methods in Teaching Art.** 0-3-3. Preq., Education 380. The planning of a course of art and the methods of presentation of such a course in the elementary and high schools. W.
- 380: Principles of Secondary Teaching.** 0-3-3. An investigation of the principles of secondary teaching as related to the student, curriculum, and the teaching-learning process.
- 390: Audio-Visual Lab.** 1 1/4-1-1. Preq., Education 380 or 320 and 90 semester hours. A course to instruct the prospective teacher in the operation of various types of audio-visual equipment. Su,F,W,Sp. (Pass-Fail)
- 400: Audio-Visual Methods of Teaching.** 1-3-3. To acquaint teachers with the interrelated uses of audio-visual materials and techniques, including laboratory experience. (Additional credit may not be earned in Education 390.) Su,F,W,Sp.
- 402: Measurement in Education.** 0-2-2. Preq., Education 380 or 320. Includes principles of measurement, construction and utilization of teacher-made and standardized tests. Shall be taken prior to or concurrently with student teaching. Su,F,Sp.
- 403: Materials and Methods of Teaching Reading in the Secondary School.** 0-3-3. Deals with problems of teaching reading in the secondary school. Includes emphasis on remedial and developmental reading as well as reading instruction in content areas. Su,F,W,Sp.
- 404: Reading Strategies for Secondary School Teachers.** 0-3-3. Instructional techniques designed to assist the secondary teacher in implementing reading strategies in content courses.
- 406: Education Innovations in the Current and Emerging Schools.** 0-3-3. Study of educational innovations and their implications. Topics include nongraded schools, team teaching, educational television, and flexible scheduling. W.
- 409: Materials and Methods in Teaching Business Education.** 2 to 3 semester hours. Preq., Office Administration 307, Accounting 310, Quantitative Analysis 220. A course designed to acquaint the student with the best practices in teaching commercial subjects. W.
- 410: Business and Office Operations.** 0-3-3. Methods and procedures in developing and coordinating a cooperative office education program in the secondary school. F.
- 416: Student Teaching.** 35-2-9. Preq., meet all qualifications listed for student teaching in this catalog. Student teacher receives supervised experiences in observing, planning, directing and evaluating experiences of pupils leading to total responsibility for the instructional program in a classroom.
- 420: Practica in Education.** 10-1-3. Preq., Consent of Director of Laboratory Experience. Structured laboratory experiences in area(s) of specialization in education. May be repeated for credit. Su,F,W,Sp. (Pass-Fail).
- 426: Improving Instruction in Music.** 0-3-3. Preq., senior standing. Analysis of varied materials, methods and techniques; titles

available from different publishers, rental libraries, and the State Department of Education; attention to evaluation and selection for different levels of attainment. Su,Sp.

- 431: School Readiness.** 0-3-3. Preq., Education 380. Designed to acquaint the student with the appropriate theory, understanding, and methods necessary for successful school achievement. Particular emphasis will be on readiness in Language Arts. F,Sp.
- 432: Kindergarten Education.** 0-3-3. Preq., Education 380. Course will involve readings as background for a study of the development of kindergarten education and curriculum planning based on principles of child development. Su,W.
- 433: Special Problems in School Curriculum.** 0-3-3-(9). Preq., consent of the instructor. This course is designed to deal with selected problems in elementary and secondary schools. Su,F,W,Sp.
- 441: Methods of Teaching Kindergarten Children.** 0-3-3. Preq., Psychology 205, Library Science 201, and Education 432. Practical problems in the selection and organization of the curriculum to promote the child's learning. Emphasis on planning, selecting equipment, teaching aids, and teaching procedures. F,Sp.
- 445: Methods of Using the Computer in the Classroom.** 2 3/4-1-3. This course is designed to instruct the pre-service and in-service teacher in the use of computer assisted instructions.
- 446: Instructional Classroom Materials.** 0-3-3. Designed to acquaint teachers with the selection, preparation, utilization and evaluation of audio-visual instructional materials. Su,W.
- 450: Improving Instruction in Art.** 0-3-3. Problems of teaching art in elementary and junior high school with emphasis upon philosophy, art materials and techniques, evaluation and curriculum planning. Su, even.
- 452: Administration of Instructional Materials Centers.** 0-3-3. Techniques organization, management and selection of printed and non-book materials in multi-media instructional materials centers. Su, even.
- 462: Principles and Problems of Cooperative Education.** 0-3-3. The basic principles and philosophies of cooperative vocational education. History and development of cooperative education. F.
- 465: Materials and Methods of Teaching Vocal Music.** 0-3-3. Examines problems which confront the secondary teacher and supervisor of vocal music; e.g., program building, contests, festivals, requisitions, grading, materials, scheduling, and rehearsing. Sp.
- 466: Materials and Methods of Teaching Instrumental Music.** 0-3-3. See Education 465 for description; emphasis on the instrumental aspects. Sp.
- 471: Behavior Management in the Classroom.** 0-3-3. Course emphasizes the application of concepts, principles, and skills necessary for designing, implementing, evaluating and revising behavior change plans for academic and/or social behavior problems in the classroom.
- 472: Individually Guided Education.** 0-3-3. Presents the essential concepts principles, and skills of several individualized instruction models and teacher roles as designers, managers, and evaluators of the teaching-learning process.
- 485: Child Study.** 0-3-3. Emphasis is placed on observing the dynamic interrelations between all processes in the behavior and the development of an individual. F.
- 486: Child Study.** 0-3-3. A continuation of Education 485.
- 487: Child Study Leadership.** 0-3-3. Offers apprenticeship in training persons to become staff members in human development workshops and consultants to Child Study Field Programs. Sp.
- 490: Introduction to Adult Education.** 0-3-3. A study of the history, philosophy, objectives and nature of adult and continuing education; emphasis given to the adult as a learner.F.
- 491: Reading in Adult Education.** 0-3-3. Examines the basis of reading instruction in relation to the needs and characteristics of the functionally illiterate adult. Sp.
- 492: Methods and Materials in Adult Education.** 0-3-3. Examination of characteristics unique to the adult with emphasis on

analysis of the methods and materials available for working with adults. W.

- 495: Methods and Materials in Teaching Aerospace Education.** 0-3-3. The course is designed to familiarize students with the contribution that aerospace education can make in the development of the school curriculum. Su.
- 496: Elementary Aerospace Education.** 0-3-3. Designed to assist the elementary teacher in applying Aerospace Education concepts and materials in the regular school curriculum.
- 500: Foundations of Curriculum Construction.** 0-3-3. A study of principles of curriculum construction in elementary and secondary schools. Major emphasis is upon the selection, organization, and sequential arrangement of materials to meet the needs of children and youth.
- 501: Problems in Teaching Elementary Science.** 0-3-3. A survey of research bearing on problems of organizing, developing, and evaluating the curriculum in science.
- 502: Problems in Teaching Language Arts in the Elementary School (Other than Reading.)** 0-3-3. A study of the principles, research, methods and materials needed for teaching written and oral forms of communication in elementary and junior high schools.
- 503: Problems in Teaching Reading.** 0-3-3. A study of problems in the teaching of reading in elementary schools. Special emphasis will be given to the development of a reading program, diagnosis, and care of individual needs of pupils, use of materials, research findings, and their applications to methods of instruction.
- 504: Problems in Teaching Mathematics in the Elementary School.** 0-3-3. A study of the needs and problems of teachers of mathematics in the elementary school. An introduction to modern arithmetic with emphasis on newer teaching methods.
- 506: Improving Instruction in English.** 0-3-3. A study of the methods of teaching usage and literature, analyses of curricula, selection of materials, research in recent studies in the teaching of English. Special attention will be given to planning units of work, to creative teaching and to a consideration of the needs of youth in area of reading, writing, speaking, and listening.
- 507: Improving Instruction in High School Mathematics.** 0-3-3. The place of mathematics in general education and in specialized fields; professionalized subject matter; modern methods of teaching. Students will become familiar with teaching aids, long-unit assignments, and the construction and use of standardized and teacher-made tests.
- 508: Improving Instruction in Science.** 0-3-3. A study of present-day trends in the teaching of science, content, organization of materials, methods of instruction, student activities, objectives, observation trips, use of textbooks, laboratory work and equipment, evaluation, preparation of unit and lesson plans, projects and student guidance.
- 509: Improving Instruction in the Social Studies.** 0-3-3. A study of the selection and organization of subject-matter in social studies, the planning of student activities, the use of instructional materials. Students will prepare unit and lesson plans utilizing community resources.
- 510: The Principalship.** 0-3-3. The responsibilities of the principal in elementary and secondary schools. Emphasis will be placed on the educational program, staff personnel relationship, and pupil personnel activities.
- 511: Improving Instruction in Speech.** 0-3-3. A course designed to extend the student's knowledge and experience in the area of speech which he/she has chosen to pursue. The student will concentrate his/her work in one of the following areas: speech therapy, audiology, public address, speech science, drama, interpretation, or broadcasting.
- 512: Philosophy of Education.** 0-3-3. Designed to trace some of the more important educational problems as they have been affected by social and political facts of history, by contributions of leading educational theorists and by institutional practice.
- 513: Philosophy of Music Education.** 0-3-3. A review of the historical development of music education in America and an

analysis of trends in music education from 1930 to the present time.

- 514: The Learner in Adult Education.** 0-3-3. The learner in adult education programs will be examined. Emphasis will be given to the teaching-learning process and the uniqueness of adult learning situations.
- 515: Administration and Supervision of Adult Education.** 0-3-3. General administrative processes, emphasizing program planning and evaluation.
- 517: History of Education.** 0-3-3. A study of the development of education from ancient times through the scientific movement.
- 518: History of American Education.** 0-3-3. A survey of the development and growth of elementary, secondary, and higher education with emphasis upon American education.
- 524: Supervision of Student Teaching.** 0-3-3. Designed for experienced teachers who are interested in serving as supervising teachers in teacher-education programs.
- 525: Seminar in Business Education.** 0-3-3. Investigation, analysis, and discussion of current problems, philosophy, and trends in business education. Required of master's degree candidates in business education.
- 526: Educational Supervision.** 0-3-3. Designed to aid those individuals who have responsibility for assisting teachers in the improvement of instruction at both elementary and secondary levels.
- 527: Public School Organization and Administration.** 0-3-3. Introduction to national, state, and local administration; public school finance; principles and practices of administration; administration of special services; national and state legal aspects of public school administration, and administration of school-community relations.
- 528: Evaluating Pupil Growth.** 0-3-3. Methods and procedures in test development, administration, validation, and interpretation.
- 529: Educational Planning and Accountability.** 0-3-3. A survey of planning and accountability models in education while emphasizing the essential principles and skills necessary for designing, implementing, and evaluating educational plans.
- 533: Problems in Education.** 0-3-3-(9). Preq., consent of the instructor. An advanced course dealing with special problems in the different fields of education.
- 534: Diagnosis and Evaluation of Reading Difficulties.** 0-3-3. Preq., Education 503. Causes, diagnosis, evaluation and correction of reading disabilities.
- 535: Clinical Reading.** 7-1-3. Preq., Education 534. Clinical experience in diagnosing reading problems of school children.
- 536: Clinical Reading.** 7-1-3. Preq., Education 535. Practicum in remedial reading for school children.
- 537: Seminar, Problems in Reading.** 0-3-3. Preq., consent of instructor. Recent issues, theories, studies and research findings in teaching reading.
- 538: Supervision and Curriculum Development in Reading.** 0-3-3. Construction of an innovative curriculum in reading, plans for implementation of new curriculum, and supervision of the reading program.
- 539: Advanced Laboratory Practicum in Reading.** 7-1-3. Supervised internship in reading.
- 540: Comparative Education.** 0-3-3. A study of the educational systems in Europe, the Orient, and South America.
- 541: Introduction to Graduate Study and Research.** 0-3-3. Experience is gained in the application of techniques of educational research, in writing in acceptable form, and in evaluating research. Required of all master's candidates in education and should be scheduled during the first six hours of graduate work. (Not open to students who have credit in Education 551.)
- 542: Statistical Methods in Education.** 0-3-3. A study of the statistical methods used by school personnel in the study of educational problems.
- 543: Adjudication of Instrumental Ensembles.** 0-2-2. This course examines in detail a philosophy of the phenomenon of adjudication. It includes practical aspects of evaluation.

544: Reading in the Content Areas. 0-3-3. Provides teaching methods and research findings related to the reading process as it applies to the various content areas of the curriculum.

545: The New Media in Education. 2-2-3. A study of the uses of television, teaching machines, programmed materials, overhead projectors, loop films, and other new teaching aids with some practical experience in the use of these educational aids.

548: Improving Instruction in Shorthand, Typewriting, and Clerical Office Practice. 0-3-3. A study of the methods used in teaching beginning and advanced shorthand, typewriting, and clerical office practice; evaluation of instructional materials; development of original materials in accordance with teaching procedures recommended by authorities in the field; special consideration of teaching problems.

549: Improving Instruction in Bookkeeping, Basic Business, and Related Areas. 0-3-3. A study of the selection and organization of teaching materials for bookkeeping, general business, consumer economics, business law, and business principles and management. Consideration will be given to standards of achievement, evaluation, motivation devices, visual aids, projects, practical problems, and unit lesson planning.

551: Research and Thesis. Three hours or multiples thereof. Maximum credit allowed is six hours.

561: Research Design and Analysis. 0-3-3. Preq., Education 542. A study of the techniques involved in the analysis of selected experimental designs in educational research.

564: The Reading Process. 0-3-3. An analysis of the physiological, psychological, and neurological foundations of the reading process.

570: Field Problem and Internship. 0-3-3. Preq., approval of the Head of the Department of Office Administration and Business Education. The provision of supervised professional activities in business education directed by the business education faculty. Selection of one major area of business education for intensive study in terms of methods, materials, research, and curricular problems.

571: Research and Readings in Business Education. 0-3-3. Preq., a graduate level research course covering descriptive, historical, experimental and other established methods and techniques of study and approval of the Head of the Department of Office Administration and Business Education. An analysis of literature in business education; trends and recent developments in this field; particular attention to problems related to the student's individual needs or interests.

580: Specialist Research and Thesis. Three hours credit or multiples thereof. Maximum credit allowed is six hours.

ELECTRICAL ENGINEERING

100: Introduction to Electrical Engineering. 3-0-1. A survey of topics to introduce the student to the profession, the department and the curriculum. F.

202: Electrical Circuits. 0-3-3. Preq., credit or registration in Mathematics 231. Fundamental electrical concepts and units. Basic laws of electrical circuits. Equivalent circuits. Power and energy in resistive networks.

203: Digital Computer Programming. 3-1-2. Preq., Mathematics 111. The use of the digital computer for the solution of engineering problems. Su,F,W,Sp.

204: Electrical Circuits. 0-2-2. Preq., Electrical Engineering 202 and credit or registration in Mathematics 232. Time response of R-L, R-C, and R-L-C circuits. Response of networks to steady-state sinusoidal sources. Complex numbers, phasors, and impedances. Power and RMS values. Network theorems.

205: Electrical Circuits Laboratory. 3-0-1. Preq., Electrical Engineering 202. An introduction to methods, instruments and devices for measurements in electrical networks.

213: Electrical Circuits. 0-3-3. Preq., Math 231 and Physics 202. Fundamental electrical concepts and units. Basic laws of electrical circuits. Equivalent circuits. A.C. circuit analysis. Average power and effective current. Su,F,W,Sp.

- 214: Electrical Circuits.** 0-3-3. Preq., Electrical Engineering 202 and credit or registration in Mathematics 232. Circuit Theorems. Topology. Loop and Nodal analysis. Equivalent circuits and parameters. Transients. Complex power. Polyphase circuit analysis. Su,F,W,Sp.
- 301: Introduction to Electric and Magnetic Fields.** 0-2-2. Preq., Electrical Engineering 214 and Physics 202. Electric and magnetic fields. Capacitors and electromagnetic concepts and units. The magnetic circuit. Electromagnetic induction and forces. Su,F,W.
- 302: Electrical Circuits.** 0-2-2. Preq., Electrical Engineering 214 and credit or registration in Mathematics 330. A study of resonant circuits. Graphical techniques. Coupled circuits and transformers. Polyphase circuits. F,Sp.
- 303: Electrical Circuits Laboratory.** 3-0-1. Preq., Electrical Engineering 214 and credit or registration in Electrical Engineering 302. Measurements of voltage, current and power in single-phase and polyphase networks having alternating current sources. F,Sp.
- 308: Electrical Machinery.** 0-3-3. Preq., Electrical Engineering 214 and 301. Electromagnetic energy storage and conversion. Principles of electromechanical energy conversion. Power transformers. Analysis of rotating machines. F,W.
- 309: Electrical Machinery Laboratory.** 3-0-1. Preq., Electrical Engineering 303 and credit or registration in Electrical Engineering 308. Laboratory testing of basic electromechanical devices and machines. F,W.
- 313: Electrical Circuits.** 0-2-2. Preq., Electrical Engineering 302 and credit or registration in Mathematics 350. A study of non-linear elements. Fourier Analysis. Fourier transforms. Laplace transforms and convolution. Two-port networks. F,W.
- 324: Electrical Machinery.** 3-2-3. Preq., Electrical Engineering 213. A study of direct-current and alternating-current machines. Generators, motors, and transformers. Analysis of the operating characteristics of machines. F,Sp.
- 325: Industrial Electronics.** 0-3-3. Preq., Electrical Engineering 213. Basic semiconductor theory. Diodes and power supplies. Amplifiers and oscillators. Analysis of electronic circuits for measurement and control. Applications. Su,W,Sp.
- 326: Electrical Equipment for Buildings.** 0-3-3. Preq., Mathematics 220 and Physics 210. Not available for electrical engineering majors. A study of the problems of the design and application of electrical wiring and lighting systems for buildings. Su,W.
- 353: Electronics.** 0-3-3. Preq., Electrical Engineering 214. Basic semiconductor theory. Diodes and power supplies. Amplifiers and oscillators. Analysis of electronic circuits for measurement and control. Applications. Su,W,Sp.
- 354: Electronics.** 0-3-3. Preq., Electrical Engineering 353, or consent of the instructor. Thermionic devices. Frequency characteristics of electronic amplifiers. Multistage amplifiers. Feedback and stability. Tuned amplifiers. Power amplifiers. W,Sp.
- 355: Electronics Laboratory.** 3-0-1. Preq., Electrical Engineering 303 and credit or registration in Electrical Engineering 354. Laboratory work with basic electronic circuits. W,Sp.
- 400: Special Problems.** 0-3-3. Preq., senior standing. Electrical engineering problems designed to meet the student's need and to promote initiative and self-reliance. Su,F,W,Sp.
- 401: Electric and Magnetic Fields.** 0-3-3. Preq., Electrical Engineering 301 and Mathematics 350. Static and dynamic electromagnetic fields. Currents. Vector analysis. Maxwell's equations. W,Sp.
- 403: Electronics Laboratory.** 3-0-1. Preq., credit or registration in Electrical Engineering 353. Closely supervised laboratory study of electronic circuits. Opportunity for individual investigation and construction of electronic apparatus. F,Sp.
- 404: Electronics Laboratory.** 3-0-1. Preq., Electrical Engineering 353. Continuation of Electrical Engineering 403. Su,W.
- 408: Linear Systems.** 0-2-2. Preq., Electrical Engineering 302 or consent of the instructor. An introduction to the theory of linear systems. Time domain analysis and state-variable methods. F.
- 409: Linear Systems.** 0-2-2. Preq., Electrical Engineering 408 or permission of the instructor. Stability theory, periodic systems, macroscopic system theory and transform analysis. W.
- 420: Modulation Systems.** 0-3-3. Preq., Electrical Engineering 354. Application of Fourier theory to communication systems. Analog and digital modulation and demodulation systems. Signal comparison. Multiplexing. F.
- 421: Power Circuit Analysis.** 0-2-2. Preq., Electrical Engineering 302 or consent of the instructor. Single-phase and three-phase power circuits. Sources and loads, balanced and unbalanced. Distribution circuits and transformer connections. Pre-unit representation. Power transfer equation. Control of watts and vars. F.
- 424: Seminar.** 0-1-1. Preq., senior standing. Promotion and interest in the exchange of ideas through discussion, informal talks, and debate on contemporary thought and trends. Su,F,W,Sp.
- 426: Electrical Transmission.** 0-3-3. Preq., Electrical Engineering 302 and Mathematics 350 or consent of the instructor. Distributed transmission line parameters single-phase and three-phase. Current and voltage on long lines. Lossy and lossless lines. Impedance matching and graphical solutions. Generalized circuit constants. W.
- 427: Power Systems.** 0-2-2. Preq. Electrical Engineering 308 or consent of the instructor. Load flow studies. Economic operation of power systems. Symmetrical faults. Symmetrical components. Unsymmetrical faults. System stability. Sp.
- 430: Communication Electronics.** 0-2-2. Preq. Electrical Engineering 420 or consent of the instructor. Tuned voltage and power amplifiers transmitters and receivers. Radio and television systems. Sp.
- 431: Guided Waves.** 3-3-4. Preq. Electrical Engineering 401. Transmission line parameters, lumped-constant lines. Analytical and graphical impedance matching. Plane and guided electromagnetic waves. Microwave networks. Antennas. W.
- 432: Automatic Control Systems.** 3-3-4. Preq. Electrical Engineering 302, Mathematics 350, or consent of instructor. Analysis and design of linear feedback systems. Transfer functions. Transfer function plots. Transient and steady-state characterization. Stability determination. Closed-loop compensation. F,Sp.
- 434: Electronics.** 0-3-3. Preq. Electrical Engineering 354. High-frequency amplifiers. Microwave amplifiers and oscillators. Radiation. Antenna systems.
- 435: Integrated Circuit Electronics.** 0-3-3. Preq. Electrical Engineering 354. Transistor biasing and stability. Hybrid and high frequency a.c. models. Feedback differential amplifiers. Introduction to linear integrated circuits. Operational amplifier analysis. Digital circuits.
- 436: Analog Computers.** 0-2-2. Preq. Mathematics 350 or consent of the instructor. An introduction to the use of the electronic analog computer for solving linear and nonlinear ordinary differential equations. W.
- 437: Digital Logic Fundamentals.** 0-2-2. Preq. Electrical Engineering 353 or consent of the instructor. Boolean Algebra applied to switching circuits. Simplification methods for combinational logic. Number systems. Codes. Iterative networks. Trees. Hazards. Applications. F,Sp.
- 439: Random Signal Analysis.** 0-2-2. Preq., Electrical Engineering 420 or consent of the instructor. Statistical communication theory. Random processes. Noises. Linear system analysis. Performance evaluation of analog and digital communication systems. W.
- 441: Digital Computer Systems.** 3-2-3. Preq., Electrical Engineering 437 or consent of the instructor. The organization of stored program digital computers and information processing systems. The logical design for arithmetic, control, and input-output functions.
- 442: Computer Organization and Machine Language Programming.** 3-3-4. Preq., consent of the instructor. Introduction to the operational organization of computers, machine codes, and programming in machine and symbolic-assembler languages. Su,W.

- 445: Computer Electronics.** 3-1-2. Preq., Electrical Engineering 353 and Electrical Engineering 437 or consent of the instructor. An introduction to digital integrated circuits. F.
- 446: Microprocessor Applications.** 3-2-3. Preq., senior or graduate standing in science or engineering. An introduction to the use of microprocessors. Available devices, organization, programming, system design. W.
- 447: Advanced Digital Logic.** 0-2-2. Preq., Electrical Engineering 437. Sequential logic theory and applications. Synchronous (clocked) logic design. Asynchronous logic design methods. Hazards. Practical applications of sequential circuits.
- 450: Selected Topics.** 0-2-2. Preq., permission of instructor. Work in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term. Su,F,W,Sp.
- 501: Servomechanisms.** 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Mathematical formulation of the control problem. Linear servo analysis and systems. Design criteria and optimum systems.
- 502: Network Synthesis.** 0-3-3. Electrical Engineering 313 or permission of the instructor. Energy relations in passive networks. Realizability and synthesis of driving-point impedances and transfer functions. Synthesis of prescribed transfer function.
- 503: Information Theory.** 0-3-3. Preq., permission of instructor. Quantitative theory of information based on probability. Discrete and continuous signal information. Noise, entropy, redundancy, code capacity, and language transmission capacity.
- 504: Systems Engineering.** 0-3-3. Preq., permission of instructor. Tools of large-scale systems design. Probability theory, mathematical statistics, operations analysis, computers, simulation.
- 505: Solid-State Electronics.** 0-3-3. Preq. permission of the instructor. Analysis, application, and design and solid-state circuitry and special devices.
- 506: Electromechanical Energy Conversion.** 0-3-3. Preq., Electrical Engineering 308 and Mathematics 350 or permission of the instructor. Equations of motion of electromechanical systems. Analytical techniques for solution of equations. Typical transducers. The generalized machine System dynamics.
- 507: Digital Computer Circuits.** 0-3-3. Preq., Electrical Engineering 437 or permission of the instructor. Study of the logic of digital computers. Circuits for computation and control. Pulse circuits, memory elements, and input-output systems.
- 509: Sampled-Data Systems.** 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Sampling theory. Z-transforms. Data reconstruction. Stability analysis. Digital compensation. Modified Z-transform.
- 510: Nonlinear Systems.** 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Mathematical models of nonlinear systems. Phase-space analysis. Critical point characterization. Describing functions. Sub-harmonic generation. Stability determination. General solution methods.
- 511: Design of Optimum Systems.** 0-3-3. Preq., Mathematics 350 and permission of the instructor. Linear system theory. Statistics of random variables. Response to distributed inputs. System analysis and optimum design with multiple inputs and outputs. Optimum inputs.
- 522: Active Network Synthesis.** 0-3-3. Preq., Electrical Engineering 502 or permission of the instructor. Basic properties of linear, lumped, finite networks. Synthesis of active R-C, one-port and two-port networks. Characterization of active and nonreciprocal elements.
- 523: Active Network Synthesis.** 0-3-3. Preq., Electrical Engineering 522 or permission of the instructor. Negative impedance converters and controlled sources in active R-C network synthesis. Lossless nonreciprocal two-part network synthesis. Characterization of negative impedance amplifiers.
- 530: Electromagnetic Waves.** 0-3-3. Preq., Electrical Engineering 401 or permission of the instructor. Propagation, reflection and refraction of electromagnetic waves. Guided waves and power flow. Boundary-value problems.
- 531: Antennas and Radiation.** 0-3-3. Preq., Electrical Engineering 530 or permission of instructor. Channel effects and types of propagation. Theory and practice in antenna design.
- 540: Digital Filter Theory.** 0-3-3. Preq., permission of the instructor. Infinite and finite memory. Digital filter theory with prediction, smoothing, differentiation or integration. Noise reduction.
- 541: Finite-State Machines.** 0-3-3. Preq., permission of instructor. Theory of automata. Machine characterization. Transistor matrices. State and machine equivalence. Machine minimization. Identification for state and machines.
- 550: Special Problems.** 1-4 semester hours. Advanced problems in electrical engineering. The problems and projects will be treated by current methods used in professional practice.

ELECTRO TECHNOLOGY

- 160: Basic Electricity.** 0-3-3. An introduction to the fundamental concepts of electricity. F.
- 161: Basic Electricity Lab.** 3-0-1. Coreq., Electro-Technology 160. Practical laboratory exercises to illustrate the material in Electro-Technology 160. F.
- 170: Basic Circuit Theory.** 0-3-3. Preq., Electro-Technology 160, Math 111. Credit or concurrent registration in ET 171. Introduction to D.C. circuit theory; loop and node equations. The magnetic circuit. W.
- 171: Basic Circuit Lab.** 3-0-1. Credit or concurrent registration in Electro-Technology 170. Laboratory companion to Electro-Technology 170. W.
- 180: A-C Circuits.** 0-3-3. Preq., Electro-Technology 170, Math 112. Credit or concurrent registration in Electro-Technology 181. An extension of the concepts developed in Electro-Technology 170, to include alternating current circuits for sinusoidal steady-state analysis. Sp.
- 181: A-C Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 180. Laboratory companion to Electro-Technology 180. Sp.
- 182: Technical Problems.** 0-2-2. Preq., Math 220. Practical problems in electricity and circuit theory designed to illustrate the use of mathematics as an aid, and to develop judgment in the interpretation of results. F.
- 260: Electronics.** 0-3-3. Preq., Electro-Technology 180. Credit or concurrent registration in Electro-Technology 261. An introductory treatment of solid state devices, concentrating on the ordinary diode and the bipolar and field effect transistors. F.
- 261: Electronics Laboratory.** 3-0-1. Preq., Credit or concurrent registration in Electro-Technology 260. Introductory electronics laboratory, a companion to Electro-Technology 260. F.
- 262: Technical Problems.** 0-2-2. Coreq., Electro-Technology 182, Preq., Math 220. A continuation of Electro-Technology 182, concentrating primarily on problems utilizing the techniques taught in Math 220, applied calculus. F.
- 264: Personal and Occupational Guidance.** 0-2-2. Applied organizational theory. This course will seek to prepare the student to operate most effectively in an organization from the standpoints of both the employer and employee. W.
- 270: Instrumentation.** 0-3-3. Preq., Electro-Technology 180 or consent of the instructor. Basic measuring devices, meters, bridges, etc. An introduction to the methods used in making accurate measurements. W.
- 272: Electronics Applications.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 273. Continuation of Electro-Technology 260. The study of semiconductor devices imbedded in passive RLC networks, and their applications in practical situations. F.
- 273: Electronics Applications Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 272. Training in the construction and troubleshooting of solid state electronics circuits. F.
- 274: Computer Programming.** 0-3-3. Preq., Math 111. The logic of computer solutions to problems. Basic programming utilizing

Fortran and other popular languages. Applications of computer usage in electro-technology. Sp.

- 280: Electrical Power.** 0-3-3. Preq., Electro-Technology 180. A survey of the power field; the aims, problems and techniques. Future trends. Sp.
- 284: Computers.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 285. Digital and analog computer systems, circuits, and maintenance. Sp.
- 285: Computers Laboratory.** 3-0-1. Preq., Credit or concurrent registration in Electro-Technology 284. Practical laboratory exercises in computer circuitry and maintenance techniques. Sp.
- 360: Electrical Power.** 0-3-3. Preq., Electro-Technology 180. Credit or concurrent registration in Electro-Technology 361. Study of techniques and solution to fundamental problems in the electric power industry. Emphasis on practical applications. W.
- 361: Electrical Power Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 360. Companion laboratory to 360. W.
- 370: Integrated Circuits.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 371. Applications of integrated circuits, both linear and discrete, in a variety of amplifiers, switching circuits and functional operations. F.
- 371: Integrated Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 370. Practical laboratory work in the utilization of integrated circuits in active networks, both linear and discrete. F.
- 382: Computer Servicing.** 0-2-2. Preq., Electro-Technology 284. Techniques of fault isolation and repair of digital and analog computers. Preventive maintenance techniques. The theory of maintainability.
- 383: Computer Servicing Laboratory.** 3-0-1. Coreq., Electro-Technology 382. Practical troubleshooting of computer systems.
- 390: Electrical Drafting.** 6-0-2. Preq., Technical Drafting 101. A course in drafting with emphasis on wiring diagrams, electrical standards, codes, etc. F.
- 460: Communication Circuits.** 0-2-2. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 461. The study of circuits used in AM and FM radio, television, and digital data transmission. F.
- 461: Communication Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 460. Companion laboratory to lecture Electro-Technology 460. Construction of RF amplifiers, modulators, etc. F.
- 465: Circuit design and fabrication.** 3-1-2. Preq., ET 370 and ET 390. A student project course in design, layout and fabrication of printed circuits. Sp.
- 470: Control Systems.** 0-2-2. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 471. Introductory control systems. A survey of the field, with emphasis on the problems, current solutions, and analytical methods. W.
- 471: Control Systems Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 470. Field trips and laboratory experiments in principles of automatic control systems. W.
- 472: Seminar.** 0-1-1. Preq., senior standing. Discussion of employment, current job market, preparation of personal data sheets, application forms, other placement activities. W.
- 480: Electronic Computers.** 0-3-3. Preq., Electro-Technology 284. Credit or concurrent registration in Electro-Technology 481. Organization, operation, and programming of digital computers on a more advanced level. Basic numerical techniques.
- 481: Electronic Computers Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 480. A workshop in computer methods intended to provide applications of the theory in Electro-Technology 480 lecture.
- 490: Special Problems.** 1-4- (9) hours credit. Preq., consent of instructor. A course to be arranged for the purpose of covering a selected topic of current importance or special interest. Su,F,W,Sp.

ENGINEERING

- 102: Programming for Engineers.** 0-2-2. Preq., Eligible for registration in Mathematics 230. Functional characteristics of calculators and computers; overview of programming languages and systems; FORTRAN; analysis and solution of engineering problems. Su,F,W,Sp.
- 151: Engineering Graphics.** 6-0-2. Beginning graphics for engineers. Su,F,W,Sp.
- 152: Engineering Drawing.** 6-0-2. Preq., Engineering 151 or Technical Drafting 101. Engineering drawing for Civil Engineering. Drawing of maps, topographic conventions, plans and profiles.
- 162: Descriptive Geometry.** 0-3-3. Preq., Engineering 151 or Technical Drafting 101. Orthographic representation and solution of space problems.
- 300: European Influence on Engineering.** 0-3-3. Preq., Sophomore standing or consent of instructor. European influence on Engineering theory and practice. Engineering accomplishments in Europe. Impact of engineering on western civilization. Su.
- 401: Engineering Economy.** 0-2-2. Preq., Mathematics 231. Economic analysis of engineering design alternatives.
- 425: Ethics and Professionalism.** 0-1-1. Preq., senior standing or consent of department head. A study of ethics and professionalism as it relates to the engineering profession and the student's career.
- 431: Contracts and Specifications.** 0-2-2. Preq., junior standing or consent of instructor. Legal documents of construction contracts. W.
- 551: Research and Thesis.** Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.
- 590: Research and Dissertation.** Registration in any quarter may be for three semester hours credit or multiple thereof. Maximum credit allowed is thirty hours.

ENGINEERING MECHANICS

- 201: Statics.** 0-2-2. Preq., Engineering 151 and Mathematics 220 or 231. (Not open to students who have had EM 211.) Systems of forces and couples; concept and fundamentals of static equilibrium and centroids. Su,F,W,Sp.
- 203: Dynamics.** 0-2-2. Preq., Engineering Mechanics 201 or 211. Kinematics and Kinetics of rectilinear, rotational, and plane motion. Moment of inertia of mass. Work and power. Principles of impulse and momentum. Su,F,W,Sp.
- 206: Statics.** 0-3-3. Preq., Mathematics 112, Mechanics of rigid bodies. Force systems. Fundamental concepts of static equilibrium. Centroids, moments of inertia and friction. F.
- 207: Strength of Materials.** 0-3-3. Preq., Engineering Mechanics 206. Mechanics of deformable bodies. Stresses and strains. Beam deflections. Column theory. Torsion. W.
- 211: Statics.** 0-3-3. Preq., Engineering 151 and Mathematics 231 or 220. Mechanics of rigid bodies. Resultants and equilibrium of force systems. Centroids, fluid statics, trusses, friction. Su,F,W,Sp.
- 301: Mechanics of Materials.** 0-2-2. Preq., Engineering Mechanics 201. Mechanics of deformable bodies. Stress and strain. Torsion and bending. Beams and columns. Su,F,W,Sp.
- 311: Mechanics of Materials.** 0-3-3. Preq., Engineering Mechanics 211 and Math 232. Mechanics of deformable bodies. Stress and strain, torsion, bending, deflection of beams, columns. Su,F,W,Sp.
- 321: Elementary Fluid Mechanics.** 0-3-3. Preq., Engineering Mechanics 203 and Mathematics 232. Properties of fluids, fluid statics. Basic hydrodynamics. Continuity, energy and momentum equations. Steady flow in pipes and open channels. Fluid measurements. Su,F,W,Sp.
- 407: Advanced Strength of Materials.** 0-3-3. Preq., Engineering Mechanics 311 and Math 330. The torsion problem, membrane analogy, cylindrical shells, beams on elastic foundations and the energy methods used in indeterminate structural analysis.

ENGLISH

- 099: Developmental English.** 0-4-4. Concentration on basic skills in grammar, punctuation, spelling, and vocabulary, together with the development of writing skills. Special emphasis on the sentence, summary writing, and paragraph building.
- 101-102: Freshman Composition.** 0-3-3 each. Su,F,W,Sp.
- 201-202: Sophomore English-Introduction to English and American Literature.** 0-3-3 each. Preq., English 101-102. Su,F,W,Sp.
- All courses above 202 have 201 or 202 as a prerequisite.**
- 203: Writing Laboratory.** 9-0-3. Preq., English 101 and 102. Workshop for students at all levels experiencing problems in composition and grammar; specific attention given to working exercises and writing papers. F,Sp.
- 260: Introduction to Technical Writing.** 0-3-3 Preq., English 201 or 202. An introduction to report forms and planning, information sources, technical correspondence, style, and the modes of discourse as applied in technical writing. Su,F.
- 301: Practical Composition and Grammar.** 0-3-3. Preq., English 101 and 102. A review of the fundamentals of composition and grammar, with specific attention to the types of writing commonly used in the professions. F.
- 302: Vocabulary Enrichment.** 0-3-3. Preq., English 101 and 102. Expansion of student's vocabulary through study of English words and their meanings, including Greek and Latin roots and practical application of new vocabulary in composition. W.
- 303: Technical English.** 0-3-3. Primarily for engineering students. The writing of technical reports. Su,F,W,Sp.
- 308: The Short Story.** 0-3-3. A reading course. Opportunities to write short stories for those who wish to do so. Sp.
- 321: Comparative Literature.** 0-3-3. Classics of foreign literatures in translation. F,Sp.
- 322: Greek Drama.** 0-3-3. Preq., English 201 and 202. W.
- 325: Contemporary English and American Poetry.** 0-3-3. Sp.
- 332:* Advanced English Grammar.** 0-3-3. Su,F,W,Sp.
- 336:* Advanced Composition.** 0-3-3. Chiefly expository writing. Su,F,W,Sp.
- 352: Hebrew Literature in Translation.** 0-3-3. W.
- 361: The Scientific Method.** 0-3-3 Preq., English 202. The use of the scientific method in technical writing; discussion on analytical thinking and its application in scientific and technical reports. F.
- 362: Graphics in Technical Writing.** 0-3-3. Preq., English 260 or 303. The theory and practice of using non-verbal materials in written texts; emphasis on kinds of visual presentations and intergration of visual and verbal materials. W.
- 363: Readings in Scientific and Technical Communications.** 0-3-3. Preq., English 260 or 303. A study of the current material written about technical communication, together with a reading and critical analysis of various technological journals. Sp.
- 401: The American Mind.** 0-3-3. (Same as Philosophy 401). Important currents of ideas that have found expression in American literature. F,Sp.
- 403: Chaucer.** 0-3-3. Sp.
- 404: Milton.** 0-3-3. W,Sp.
- 405: Studies in Renaissance Literature.** 0-3-3. W,Sp.
- 407: Principles and Techniques of Literary Criticism.** 0-3-3. Sp.
- 410: The English Novel.** 0-3-3. Sp.
- 411: The Major English Poets.** (excluding Chaucer, Shakespeare, and Milton). 0-3-3. Su,F,W,Sp.
- 413: English Poetry of the Romantic Period.** 0-3-3. F,Sp.
- 414: English Poetry of the Victorian Period.** 0-3-3. F,Sp.
- 415: Shakespeare.** 0-3-3. The major plays and the poems. (Same as Speech 415.) Su,F,W,Sp.
- 416: Major American Authors (before 1865).** 0-3-3. Su,W.
- 417: Major American Authors (since 1865).** 0-3-3. Sp.
- 419: Contemporary drama.** 0-3-3. American, English and European. (Same as Speech 419.) W,Sp.
- 420: The Continental Novel.** 0-3-3. Sp.
- 422: The English Language.** 0-3-3. Primarily a course in the history of the language. Su,F,W,Sp.
- 423: English Words and Idioms.** 0-3-3. (Same as Philosophy 423.) Rhetoric and logic as applied to critical thinking. Semantics. Exercises in propaganda analysis. Vocabulary building. Su,F,W,Sp.
- 424: Contemporary Southern Authors.** 0-3-3. F,Sp.
- 428: American Fiction before the Twentieth Century.** 0-3-3. Su,W.
- 429: American Fiction in the Twentieth Century.** 0-3-3. Sp.
- 438: Sixteenth Century English Literature (excluding Shakespeare).** 0-3-3. W.
- 439: Seventeenth Century English Literature (excluding Milton).** 0-3-3. W.
- 440: Eighteenth Century English Literature.** 0-3-3. Su,W,Sp.
- 450: Nineteenth Century English Prose (excluding the novel).** 0-3-3. Su,F,W,Sp.
- 452: Elizabethan Drama (excluding Shakespeare).** 0-3-3. (Same as Speech 452.) Sp.
- 460: Advanced Technical Writing.** 0-3-3. Preq., English 260 or 303. A continuation of English 260; emphasis on longer reports and specialized forms of technical writing, such as manuals. Su,F.
- 461: Technical Writing for Publication.** 0-3-3. Preq., English 260 or 303. The writing of articles for scientific and technical journals, with emphasis on audience analysis and appropriate style; submission of articles for possible publication. W.
- 462: Technical Editing.** 0-3-3. Preq., English 260 or 303. The work of an editor, including editing a text, format standards and limitations, planning projects, and working with authors, illustrators, and production workers. Sp.
- 463: Scientific and Technical Presentations.** 0-3-3. Preq., English 260 or 303. The presentation of technical information to technical and non-technical audiences; emphasis on organization, support, and clarity of presentation; effective use of visual materials. Sp.
- 464: Occupational Technical Writing.** 0-3-3. Preq., English 260 or 303. A course designed to enable the technical writer to conduct writing training sessions within the organization and to supervise others engaged in writing tasks. W.
- 465: Specification, Bid, Grant, and Proposal Writing.** 0-3-3. Preq., English 260 or 303. Discussion of and practice in the writing of specifications, bid, grants, and proposals; emphasis on types, audience analysis, organization, and writing style. Sp.
- 466: Technical Writing Internship.** 9-0-3 (6). Preq., permission of the Department Head. On-the-job experience for the technical writing student, intended to give supervised practice under realistic working conditions. Internships are to be arranged individually.
- 467: Special Problems in Technical Communication.** 9-0-3. Preq., English 260 or 303. The selection, study, and writing of special problems. Students will work on individual projects under direct supervision of staff. F.
- 477: Honors.** 0-3-3.
- 478: Honors.** 0-3-3.
- 482: Folklore and Mythology.** 0-3-3. A study of myth and folklore, especially in Louisiana and the South, and their impact and relationship to other kinds of literature. Su,Sp.
- 484: Creative Writing.** 0-3-3. A study of the creative processes involved in style, diction and patterns of writing. Emphasis is upon prose creativity with the possibility of publishable material. F,Sp.

490: Introduction to Literary Research and Bibliography. 0-3-3. Su,W.

491: Advanced Expository Writing. 0-3-3. An introduction to writing essays and technical reports for professional publication; additional focus on style, format, editing manuscripts, and preparing specification sheets. Sp.

515: Shakespeare Seminar. 0-3-3. Preq., English 415 or its equivalent. Study of principal Shakespeare plays, other representative plays, and the principal philosophical writings of the Elizabethan and Jacobean Periods; special attention given to major critical concepts.

571-572: Studies in English Literature. 0-3-3 each.

581-582: Studies in American Literature. 0-3-3 each.

585: English Teachers' Workshop. 0-3-3. A course designed primarily for public school teachers of English. A study of the modern approaches to grammar and syntax.

592: Restoration and Eighteenth Century Drama. 0-3-3. A seminar in critical approaches to the drama of the English Restoration and the Eighteenth Century.

595: Problems in Communication. 0-3-3.

*Students may take only one of the following courses for credit: English 303, English 332, English 336.

FINANCE

100: Family Financial Management. 0-3-3. Specific family financial decisions, including budgeting, insurance, home purchase or rent, consumer credit, personal income tax, lifetime financial planning. F,W,Sp.

201: Basic Sales Financing. 0-3-3. Financing consumer sales including sources of credit, interest and payout computations, wholesale financing, truth in lending, bad debts, and legal aspects. (Associate degree credit only in CAB).

318: Business Finance. 0-3-3. Preq., Economics 202, 205, or 215 and Accounting 205 or 210 and junior standing. A study of the methods of financing a business firm, including sources and applications of funds. Su,F,W,Sp.

319: Intermediate Financial Management. 0-3-3. Preq., Finance 318. Advanced practices of financial management are developed. Financial models used in decision-making and their application to major areas of business finance are emphasized.F.

330: Risk and Insurance. 0-3-3. A comprehensive study of risk and riskbearing, including insurance and non-insurance methods of handling risk; introduction to the fields of life, disability, property, and casualty insurance. F,Sp.

412: International Finance. 0-3-3. Preq., Finance 318. A study of the various modes of financing international trade, including international financial organizations; an analysis of exchange rates, foreign investments, multinational firms, and international banking. Su.

414: Investments. 0-3-3. Preq., Finance 318. Analysis of investments in common stocks, bonds, and other financial assets; sources of information for the investor; analysis of firms' financial statements; classes of investments. F,Sp.

422: Bank Management. 0-3-3. Preq., Finance 318. Problems in organization, operation, and management of commercial banks, with special emphasis on credit granting. Su,W.

425: Money Markets, Capital Markets and Financial Institutions. 0-3-3. Preq., Finance 318. A survey of the markets in which funds are traded; a survey of the lending and investing characteristics of selected financial institutions. Sp.

427: Financial Forecasting. 0-3-3. Preq., Economics 205 or 215 and Finance 318. Financial forecasting under conditions of economic fluctuations involving sales in industries and firms within those industries and their effect on the financial needs and liquidity of firms.

430: Advanced Financial Management. 0-3-3. Preq., Finance 318. The case method is used to apply decision-making procedures to realistic problems in financial management.Sp.

431: Life Insurance. 0-3-3. A comprehensive study of personal and group life, accident and health, hospitalization, old age, survivors and disability insurance and annuities.F.

432: Property Insurance. 0-3-3. A comprehensive study of fire, burglary, robbery, forgery, inland and ocean marine insurance, and surety and fidelity bonds. W.

435: Private Pensions, Group Insurance and Estate Planning. 0-3-3. Analysis of pension regulations, design, and funding, actuarial considerations, integration with Social Security benefits, survey of group insurance, and implications for estate planning. Sp.

442: Principles of Real Estate and Land Economics. 0-3-3. Land utilization, city growth, land development, legal processes and transactions, real estate marketing, financing and financial institutions, taxes, condemnation, planning and zoning.F,Sp.

443: Appraisal. 0-3-3. Application of value theory and principles to real estate values; professional appraisal principles methodology. Corresponds to Appraisal I, American Institute of Real Estate Appraisers. W.

444: Appraisal of Urban Properties. 0-3-3. Preq., Finance 443. Appraisal case studies and practice in appraisal of commercial and industrial properties; generally corresponds to Appraisal II, Urban Properties, American Institute of Real Estate Appraisers. Sp.

445: Real Estate Finance. 0-3-3. Finance principles applied to real estate. Sources of funds, legal and financial instruments, and analytical methods for decision making. W.

515: Financial Management. 0-3-3. The study of a financial manager's role in financial planning, acquisition and management of funds for a business firm.

516: Financial Management: Policies and Practices. 0-3-3. Preq., Finance 515. Application of decision-making procedures to financial management problems. Student is required to solve case problems and manage the financial affairs of computer simulated firm.

517: Capital Budgeting Seminar. 0-3-3. Preq., Finance 515. A systematic and thorough treatment of the theory and practice of capital expenditure management, emphasizing case analysis and employing a quantitative format.

520: Seminar in Financial Theory I. 0-3-3. Preq., Finance 515 (also, desirable that student has had an intermediate or advanced economics course). Examination and application of contemporary financial theory and analysis relating to business finance.

521: Seminar in Financial Theory II. 0-3-3. Preq., Finance 520. Detailed study of both classic and contemporary literature which provides students with a cross-section of modern theoretical developments in the field of business finance.

525: Seminar in Investments. 0-3-3. Study of the theories and techniques of investment analysis for purposes of evaluation and selection of investments.

FOREIGN LANGUAGES

101-102: Elementary French. 0-3-3 each. Conversation, reading and grammar. Su,F,W,Sp.

120-121: Elementary German. 0-3-3 each. Conversation, reading, and grammar. 120-F,Sp; 121-Su,W.

140-141: Elementary Italian. 0-3-3 each. Italian pronunciation, grammar and the vocabulary of the fine arts, history, economics, and current affairs. 140-Su,Sp,Rome; 141-Su Rome.

146-147: Elementary Portuguese. 0-3-3 each. Conversation, reading and grammar. F,W, even.

150-151: Elementary Russian. 0-3-3 each. Russian orthography, pronunciation, basic grammar and the reading of simple texts. 150-F; 151-W.

160-161: Elementary Spanish. 0-3-3 each. Conversation, reading and grammar. Su,F,W,Sp.

162-163: Spanish in the Language Laboratory. 3-0-1 each. Specific conversational activities. Su,F,W, Sp.

180: English as a Foreign Language. 0-3-3 (9) English sentence structure and pattern practices for non-native speakers of English. Su,F,W,Sp.

- 181: English as a Foreign Language.** 0-3-3 (9). Writing for non-native speakers of English. Su,F,W,Sp.
- 182: English as a Foreign Language.** 3-0-1 (3). Language laboratory exercises in sentence structure and pattern practices for non-native speakers of English. Su,F,W,Sp.
- 183: English as a Foreign Language.** 3-0-1 (3). Language laboratory exercises in pronunciation and vocabulary for non-native speakers of English. Su,F,W,Sp.
- 201-202: Intermediate French.** 0-3-3 each. Preq., Foreign Language 102 or equivalent. Conversation, reading, grammar and culture. Su,W,F,Sp.
- 203: The Short Story in France.** 0-3-3. Preq., Foreign Language 202 or equivalent. A continuation of elementary French, with emphasis upon reading. Su,F,W,Sp.
- 204: French in Multicultural Contexts.** 0-3-3. Preq., Flang 202 or equivalent. Intercultural communication in French. Review of linguistic, cultural and sociolinguistic aspects of French-speaking areas. Sp.
- 205: Francophone Children's Literature.** 0-3-3. Preq., Flang 202 or equivalent. A study of French-speaking children's stories, songs, rhymes and games. Su.
- 220-221: Intermediate German.** 0-3-3. Preq., Foreign Language 121. Conversation reading, grammar, culture. The students will read a good deal of technical prose in their major fields. 220-W,Su; 221-F,Sp.
- 240-241: Intermediate Italian.** 0-3-3 each. Preq., Foreign Language 141 or equivalent. Conversation and vocabulary building with emphasis on contemporary Italian literature and individual study of Italian works in student's major field. 240-W; 241-Sp.
- 250: Russian Reading.** 0-3-3. The cultivation of a facility in reading modern literary texts. Sp.
- 251: Russian Composition.** 0-3-3. A systematic review of Russian grammar, with a view toward improving the student's control of written Russian. Su.
- 252: Russian Phonetics.** 0-3-3. A detailed study of the sounds of Russian, and the inculcation of proper speech habits. F.
- 260-261: Intermediate Spanish.** 0-3-3 each. Preq., Foreign Language 161 or equivalent. Cultural reading and conversation. Su,W,F,Sp.
- 264: Spanish in Multicultural Contexts.** 0-3-3. Preq., Flang 260. Intercultural communication in Spanish. Review of linguistic, cultural and sociolinguistic aspects of Spanish-speaking lands. Sp.
- 265: Hispanic Children's Literature.** 0-3-3 Preq., Flang 260. A study of Spanish-speaking stories, songs, rhymes and games. Su.
- 280: English as a Foreign Language.** 0-3-3 (9). Pronunciation and word study for non-native speakers of English. Audiolingual drills in pronunciation, recognition practice in vocabulary skills. Su,F,W,Sp.
- 281: English as a Foreign Language.** 0-3-3 (9). Reading skills for non-native speakers of English. Su,W,F,Sp.
- 282: English as a Foreign Language.** 3-0-1 (3). Language laboratory exercises in listening comprehension skills for non-native speakers of English. Su,W,F,Sp.
- 283: English as a Foreign Language.** 3-0-1 (3). Language laboratory exercises in conversation skills for non-native speakers of English. Su,W,F,Sp.
- 290: Language and Cultural Contexts.** 0-3-3. Preq., consent of instructor. Concepts of language and culture. Interrelationship between language and culture. Problems in intercultural communication. Processes of language acquisition and cultural adaptation. Required for international students. Su,F,W,Sp.
- 300: French Phonetics and Oral Reading.** 0-3-3. Preq., Foreign Language 202 or permission of instructor. Required for major in French. Sp, odd.
- 301-302: French Conversation and Composition.** 0-3-3 each. Preq., Foreign Language 202 or permission of instructor. Required for major in French. F,W, odd.
- 305: Contemporary French Literature.** 0-3-3. Preq., Foreign Language 202 or permission of instructor. A survey of French literature from 1914 to the present, with reading of selective works. F, even.
- 306-307: Survey of French Literature.** 0-3-3 each. Preq., Foreign Language 202 or permission of instructor. Required for major in French. A survey of French literature from the Middle Ages. F, W, even.
- 308: French Civilization.** 0-3-3. Preq., Foreign Language 202 or instructor's consent. Lectures and readings in history, geography, language, arts, general culture of French lands. W.
- 309: The Novel in French.** 0-3-3. Preq., Foreign Language 202 or permission of instructor. A study of the novel in France up to 1914, with reading of outstanding examples. Sp, odd.
- 310: French Folklore and Traditions.** 0-3-3. Preq., Foreign Language 202 or instructor's consent. Traditions, folklore, folk heritage, children's literature of French lands. Su.
- 320-321: Survey of German Literature.** 0-3-3 each. Preq., Foreign Language 220 or equivalent. A survey of German literature from the beginning until 1800. Su,F.
- 322: Classical German Literature.** 0-3-3. Preq., Foreign Language 220 or equivalent. A study of German classicism with special reference to Lessing, Goethe, Schiller. Sp.
- 323: Advanced German Grammar.** 0-3-3. Preq., Foreign Language 220 or equivalent. An intensive course in German grammar designed especially for students who need an advanced proficiency in technical German. W.
- 324-325: German Conversation and Composition.** 0-3-3 each. Preq., Foreign Language 220 or consent of instructor. Conversation on everyday topics. F,Sp.
- 326: German Civilization.** 0-3-3. Preq., Foreign Language 220 or instructor's consent. Lectures and readings in history, geography, language, arts and general culture of Germanic lands. Sp.
- 360-361: Spanish Conversation and Composition.** 0-3-3 each. Preq., Foreign Language 261 or consent of instructor. Conversation on everyday topics. W,Sp.
- 362-363: Aural Spanish.** 4-2-3 each. Preq., Foreign Language 261 or consent of instructor. Activities with aural Spanish. Introduction to interpreting. Su.
- 364-365: The Novel in Spain.** 0-3-3 each. Preq., Foreign Language 261 or consent of instructor. A study of the novel in Spain from the sixteenth century to modern times. F,W, odd.
- 366-367: The Drama in Spain.** 0-3-3 each. Preq., Foreign Language 261 or consent of instructor. A study of the drama in Spain from the sixteenth century to modern times. F,W, even.
- 368: The Novel of Latin America.** 0-3-3. Preq., Foreign Language 261 or consent of instructor. A study of representative novels of Latin America, Mexico excepted. Sp, odd.
- 369: Spanish Civilization.** 0-3-3. Preq., Foreign Language 261 or consent of instructor. Lectures and readings in Spanish history, geography, government, language, music, art, etc. W, odd.
- 370: Commercial Spanish.** 0-3-3. Preq., Foreign Language 261 or consent of instructor. Study of common commercial forms for use in Spanish correspondence and business. Su.
- 371: The Novel in Mexico.** 0-3-3. Preq., Foreign Language 261 or consent of instructor. A study of outstanding novels from 1800 to contemporary times. Su.
- 372: Folklore and Traditions of Spanish Lands.** 0-3-3. Preq., Foreign Language 261 or instructor's consent. Traditions, folklore, folk heritage, children's literature of Spanish lands. Su.
- 400: The Drama in France.** 0-3-3. Preq., Foreign Language 202 or permission of instructor. A study of the drama in France up to 1914, with reading of outstanding examples. F, odd.
- 405: The French Language.** 0-3-3. Preq., Foreign Language 202 or permission of instructor. General characteristics of the language and intense review of grammar. Sp, odd.
- 460: The Spanish Language.** 0-3-3. Preq., Foreign Language 261 or instructor's consent. Advanced grammar. General characteristics of the language, including sources, etymology, dialects. F.

- 461: The Spanish Language.** 0-3-3. Preq., Foreign Language 460 or instructor's consent. Advanced grammar. General characteristics of the language including sources, etymology, dialects. Sp, odd.

FOREIGN STUDIES

- 101: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 201: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 301: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 401: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 501: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.

FORESTRY

- 101: General Forestry.** 0-2-2. An introduction to forestry, wood utilization, relations to land management, and the uses of natural resources in furnishing goods and services.
- 202: Forest Fire.** 0-2-2. Forest fire management, protection, and control.
- 205: Dendrology.** 3-1-2. Preq., Botany 101, 104 and Forestry 101. The identification, classification, characteristics, and distribution of the principal forest trees of the United States, with emphasis on conifers.
- 206: Dendrology.** 3-1-2. A continuation of Forestry 205, with emphasis on hardwoods and spring and summer characteristics.
- 213: Forestry Principles.** 3-2-3. For non-forestry majors. Study of forestry with emphasis on its application and correlation with agriculture, wildlife, and other fields.
- 301: Silviculture; Silvics.** 3-2-3. Preq., Agronomy 302. Factors affecting the growth of trees and stands.
- 302: Silviculture; Practice.** 3-2-3. Preq., Forestry 301. Reproduction methods, treatments, and improvements of trees and stands.
- 305: Wood Technology.** 3-2-3. Preq., Botany 205. Identification, properties, and use of commercial woods.
- 306: Forest Measurements.** 3-2-3. Preq., Mathematics 111 and 112. Measurements of tree and forest volume, growth and yield, and products.
- 312: Forest and Forest Products Entomology.** 5-1-2. The study of forest entomology in relation to forest management and forest protection.
- 313: Forest and Forest Products Pathology.** 3-2-3. The important diseases of forests and forest products.
- 314: Wildlife Habitat Evaluation and Management in Southern Forest.** 3-2-3. Preq., Forestry 213 or consent of instructor. Methods of sampling, evaluating and modifying forest ecotypes for the benefit of wildlife species.
- 315: Forest Measurements.** 2 credit hours. Preq., Forestry 306. Execution of forest surveys; techniques of growth measurement; determination of volume of trees and stands.
- 316: Forest Surveying.** 3 credit hours. Preq., Mathematics 112. Property surveys. topographic mapping. layout of forest roads and trails; lumber structures.
- 320: Tree and Forest Development.** 3 credit hours. Silviculture field procedures. Practical use of various silvicultural techniques in development of forest stands.
- 321: Land Use.** 2 credit hours. Land use in the Southern Forest Region.
- 322: Bottomland Hardwoods.** 2 credit hours. Silviculture management and utilization of hardwoods of the Southern Forest Region.

- 340: Wood Processes.** 3 credit hours. Conversion of trees into usable products, harvesting techniques, machinery, and milling methods.

- 341: Bonding and Finishing of Wood** 3 credit hours. Adhesive and cohesive properties of glues and finishes.
- 401: Forest Management.** 3-2-3. Preq., Summer Camp. Principles and planning in forest management.
- 403: Forest Finance.** 0-2-2. The economic and financial considerations applying to forestry.
- 407: Forest Products.** 3-2-3. The uses of the forest crop other than lumber and its conversion into finished commodities.
- 408: Seasoning and Preservation.** 3-2-3. Preq., Forestry 305 and 407. Theory and practice of air seasoning and kiln drying of forest products. The basis of wood preservation, preservatives, and methods of application.
- 409: Forest Economics.** 0-3-3. Forests and their relation to economic, industrial, and social problems.
- 410: Forest Policy.** 0-3-3. The basic principles and policies of federal, state, and private forestry.
- 411: Forest Recreation.** 0-2-2. Forestry and nonforestry majors. Recreational use of forests and wild lands. Social, physical, and spiritual benefits of forest recreation. Forest recreation in the economy of the nation.
- 412: Forest Tree Improvement.** 0-2-2. Methods of improvement of forest trees by use of modern plant breeding techniques.
- 414: Lumber and Plywood.** 3-1-2. Preq., Forestry 305 and 407. Manufacturing plant layout, veneers, ply and laminated products, hardwood and softwood lumber grades, and utilization of residues.
- 416: Logging.** 3-1-2. Preq., Forestry 305 and 407. Logging methods, felling and bucking, skidding, loading and hauling.
- 420: Problems.** 1-3 semester hours credit. Preq., approval of the school director. Special problems in forestry and wood utilization correlated with management of land and natural resources.
- 422: Seminar** 0-1-1. Preq., senior standing. Review of research methods and programs.

GEOGRAPHY

- 200: Introduction to Geography.** 0-3-3. A survey of the field's scope, major concepts and methods of analysis and their relevance to present-day problems. F,W,Sp.
- 203: Physical Geography.** 0-3-3. Fundamentals of physical and biogeography with an emphasis on world-wide distributions of patterns and processes. Su,F,W,Sp.
- 230: World Human Geography.** 0-3-3. A survey of the people and places of the world. Su,F,w,Sp.
- 250: Geographical Methods and Techniques of Research.** 0-3-3. An introduction to the fundamentals of library, graphic, and field methods and techniques utilized in the field of geographical research. Sp.
- 260: Conservation of Natural Resources.** 0-3-3. A study of the conservation of soils, minerals, forests, water, wildlife, human resources. F,W,Sp.
- 305: Geography of Anglo-American.** 0-3-3. A study of the natural environment, resources, and cultural patterns of the major geographic regions of the United States and Canada. F, even.
- 310: Geography of Louisiana.** 0-3-3. Open only to junior senior, and graduate students. The climate, natural regions, and resources of Louisiana; cultural development; sources and distribution of the population; settlements and agricultures. Su,W.
- 314: Geography of Middle America and the West Indies.** 0-3-3. Physical, human, and economic geography of Mexico, Middle America, and the West Indies. F, even.
- 315: Geography of South America.** 0-3-3. Physical, human, and economic geography of South America. W, even.
- 320: Geography of Asia.** 0-3-3. Physical and human geography of Asia. Sp, even.

- 324: Geography of Africa.** 0-3-3. Physical and human geography of Africa. Sp, odd.
- 330: Geography of Australia.** 0-3-3. Physical and human geography of Australia, New Zealand, and the Pacific Islands. F, odd.
- 335: Economic Geography.** 0-3-3. A world survey of economic geography. W, odd.
- 360: Geography of Europe.** 0-3-3. Physical and human geography of Western and Central Europe, and the Mediterranean basin. Sp, even.
- 365: Geography of the Soviet Union.** 0-3-3. Physical and human geography of the Soviet Union. W, odd.
- 374: Elements of Weather and Climate.** 0-3-3. A survey of the basic elements of weather and climate including temperature, barometric pressure, precipitation, and the interaction of these elements. F, odd.
- 375: Climatology.** 0-3-3. Preq., Geography 203, 374, or permission of the instructor. A survey of the climatic regions of the world and the controlling factors of weather. W, even.
- 380: Cartography.** 0-3-3. Elements of map interpretation and construction; interpretation, use and construction of graphs. Sp, odd.
- 400: Elements of the Cultural Landscape.** 0-3-3. Recognition, description, analysis and interpretation of elements of the cultural landscape. Sp.
- 501: Physical and Cultural Elements of Geography.** 0-3-3.

GEOLOGY

- 111: Physical Geology.** 0-3-3. Igneous, sedimentary, and metamorphic rocks; erosion of the earth by streams, oceans, winds, glaciers; phenomena of mountains, volcanoes, earthquakes; and the earth's interior. Su, F, W, Sp.
- 112: Historical Geology.** 0-3-3. Preq., Geology 111. History of the earth as revealed in the character and fossil content of rocks. Su, F, Sp.
- 121: Physical Geology Laboratory.** 3-0-1. Preq., registration or credit in Geology 111. Identification of minerals and rocks. Study of topographic maps and physiographic features shown thereon. Su, F, Sp.
- 122: Historical Geology Laboratory.** 3-0-1. Registration or credit in Geology 112 and 121. Introduction to fossils, geologic maps, and the geologic history of selected portions of North America. F, Sp.
- 200: Introduction to Oceanography.** 0-3-3. A survey of the oceans; their nature, structure, origin, physical features, circulation, composition, natural resources, and relationship to the atmosphere and solid earth.
- 209: Mineralogy.** 3-2-3. Preq., Geology 111, 121, Chemistry 102, 104. Crystallography and descriptive mineralogy. Occurrence, associations, and uses of minerals. F.
- 210: Mineralogy.** 3-2-3. Preq., Geology 209. Continuation of descriptive mineralogy with emphasis on the study of minerals under the petrographic microscope. W.
- 211: Petrology.** 3-2-3. Preq., Geology 210. Introduction to the formation and classification of rocks. Identification of rock types in hand specimen and in thin section under the petrographic microscope. Sp.
- 302: Introduction to Paleontology.** 3-2-3. Preq., Geology 112, 122, Zoology 111 and 112. Survey of invertebrate paleontology, phylum Protozoa through phylum Arthropoda. History of the science, rules of nomenclature, and environment of lower animals. W.
- 305: Principles of Stratigraphy and Sedimentation.** 0-3-3. Preq., Geology 111, 112, 121. Classification, composition, properties, and origin of sediments, environmental factors, sedimentary processes, facies, and principles of correlation. F, W.
- 315: Structural Geology.** 3-2-3. Preq., Geology 111, 121, Mathematics 112 and Engineering 151. The recognition, representation, interpretation, and mechanics of rock deformation. Sp.
- 316: Map Interpretation.** 6-0-2. Preq., Geology 305 and 315, Civil Engineering 304. Interpretation of topographic maps, aerial photographs, geologic maps and geologic cross sections. W.
- 317: Engineering Geology.** 3-2-3. Materials of the earth's crust and their physical and chemical properties which affect foundation, surface and subsurface waters, and excavations. W.
- 320: Summer Field Course.** 6 hours credit. Preq., Geology 211, 302 and 316, English 303. Course work at the Louisiana Tech geology camp.
- 402: Petrography.** 6-1-3. Preq., Geology 401. Study of rocks in thin section using the petrographic microscope.
- 408: Subsurface Methods.** 3-2-3. Preq., Geology 305, 315, 413 and Computer Science 102. Correlation of subsurface horizons utilizing drill cores and cuttings, mechanical well logs, and computer technology. W.
- 412: Geomorphology.** 0-3-3. Preq., Geology 112. Origin, development and classification of land forms. Readings in classical and current geomorphic studies.
- 413: Petroleum Geology.** 0-3-3. Preq., Geology 315. Study of the origin, migration, and accumulation of petroleum. Reservoir characteristics and types of petroleum-bearing rock structures emphasized. F.
- 420: Directed Study of Geologic Problems.** 0-3-3 (9). Preq., senior standing. Special topics within the student's field of interest. Su, F, W, Sp.
- 421: Micropaleontology.** 3-2-3. Preq., Geology 302. Study of microfossils used in correlation of well cuttings and outcrop samples, especially foraminifera. Sp.
- 442: Geophysical Methods.** 3-2-3. Preq., Physics 210, Geology 305, 315, 408, Math 230. Introduction to the elementary theory, computation fundamentals, and basic field practice for gravity, seismic, magnetic, and electrical methods of geophysical exploration. Sp.
- 445: X-Ray Crystallography.** 3-1-2. Preq., Geology 209 and 210. Fundamentals of X-Ray crystallography. Analysis of minerals by powder diffraction method.
- 450: Seminar.** 0-1-1. Preq., senior standing in geology. Written or oral reports in various phases of geology.
- 505: Advanced Structural Geology.** 3-2-3. Preq., Geology 315. Structural problems and study of the evolution of various structural provinces of the Americas. F.
- 507: Stratigraphy and Structure of the Gulf Coast.** 0-3-3. Stratigraphy and structure of the Gulf Coastal Plain of North America. Geologic history of the region will consider environments of deposition, lithology, fauna, and tectonics. W.
- 508: Advanced Paleontology.** 3-2-3. Preq., Geology 421. Systematic, stratigraphic, and environmental studies of selected assemblages of invertebrate fossils.
- 509: Economic Geology of the Gulf Coast Region.** 0-3-3. Genesis, exploration, development, and utilization of the metallic and nonmetallic mineral resources of the Gulf Coast region.
- 521: Special Problems.** 1-4 hours credit. Advanced study in geology designed to broaden basic knowledge in the student's field of specialization. Student may elect to repeat this course for a maximum of 8 hours credit.

HEALTH & PHYSICAL EDUCATION

- 100: Exercises for Physical Development.** 3 3/4-0-1. May be repeated for degree credit on Pass-Fail basis.
- 101: Flag Football and Basketball.** 3 3/4-0-1. Designed for nonmajors with emphasis on fundamental techniques, rules and team play.
- 102: Volleyball and Softball.** 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play.
- 103: Team Sports.** 3 3/4-0-1. The course includes fundamental skills, rules, and play of soccer, speedball and Speed-A-Way.

- 104: Team Sports.** 3 3/4-0-1. The course includes fundamental skills, rules, and play of volleyball, basketball and softball.
- 105: Fundamental Weight Training.** 3 3/4-0-1 (2). Fundamental weight training and strength development techniques.
- 106: Adaptive Physical Education.** 3 3/4-0-1. This course is for those who are not able to take regular Physical Education Activity classes. Physician's statement required.
- 108: Tumbling.** 3 3/4-0-1. Beginning tumbling for the non-major.
- 109: Advanced Tumbling and Gymnastics.** 3 3/4-0-1. Advanced tumbling and gymnastics for the non-major.
- 110: Restricted Activities.** 3 3/4-0-1 (4). For students not physically able to participate in regular activity courses. Statement from physician listing restrictions is required.
- 111: Wrestling.** 3 3/4-0-1 (2). Fundamentals of wrestling.
- 113: Outdoor Recreation.** 3 3/4-0-1. Emphasis is on the modern principles of hunting and fishing.
- 115-116: Physical Education Activity Credit.** 3 3/4-0-1. Credit given for varsity participation in a sport. Not more than two hours may be acquired in this manner.
- 118: Karate.** 3 3/4-0-1. Instruction and practice in the basic arm and leg techniques, stances, warm up exercise, one step sparring, formal exercise and historical background of U. S. Karate.
- 119: Basketball and Volleyball.** 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play.
- 121: Recreational Sports.** 3 3/4-0-1. Instruction in table tennis, shuffleboard, bounceball, aerial tennis, table games and other recreational games.
- 130: Physical Education Activities for Children in the Elementary School.** 3 3/4-0-1. Preq., consent of the Area Coordinator. Opportunities are provided for students to participate in and teach a variety of physical education activities designed for children in the elementary school physical education program.
- 135: Beginning Racquetball.** 3 3/4-0-1 (2). To provide the novice instructions in basic techniques, skills, and rules so a minimum level of proficiency can be attained. F,W,Sp.
- 150: First Aid.** 0-2-2. Lectures, discussions, and practical demonstrations of Red Cross methods in First Aid.
- 200: History of Physical Education.** 0-3-3. Preq., sophomore standing. A study of the history of physical education. Emphasis on events and personalities that have influenced the development of physical education.
- 201: Soccer.** 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play.
- 205: Gymnastic Apparatus.** 3 3/4-0-1. Basic instruction in the use of gymnastic apparatus.
- 207: Principles and Practices of Coaching Minor Sports.** 1 0-2-2. Study of minor sports from viewpoint of teacher and coach.
- 210: Advanced Weight Training.** 3 3/4-0-1 (2). Preq., Health and Physical Education 105. Advanced weight training and strength development techniques.
- 215-216: Physical Education Activity Credit.** 3 3/4-0-1. Credit for varsity participation in a sport. Not more than two hours may be acquired in this manner.
- 218: Karate.** 3 3/4-0-1. Preq., Physical Education 118 or comparable karate experience. Emphasis placed on advanced karate techniques, one step sparring, free style sparring, formal exercise and the history of karate.
- 225: Outdoor Education and Recreation.** 3 3/4-2-3. Designed to acquaint recreation leaders, teachers, and administrators with the values, programs, opportunities, and relationships of outdoor education and recreation.
- 226: Recreation Leadership Theory.** 0-3-3. A study of practices, methods, and processes of staff development in leisure services. Analysis qualities and roles of leaders. Allows opportunities for direct leadership experiences.
- 230: Modern Dance.** 3 3/4-0-1. Conditioning exercises and techniques that provide a vocabulary of movement leading into dance composition.
- 231: Modern Dance.** 3 3/4-0-1. Preq., Physical Education 230 or comparable dance experience. Intermediate techniques of modern dance movements and choreography. Opportunities for production of dance programs and teaching choreography.
- 232: Modern Dance.** 3 3/4-0-1. Preq., Physical Education 231 or comparable dance experience. Advanced techniques of modern dance movements, choreography and production of dance programs.
- 233: Fundamentals and Foundations of Movement.** 3 3/4-0-1 (3). Includes body mechanics, conditioning exercises, and figure control. May be repeated for credit. F, W, Sp.
- 234: Development Conditioning.** 3 3/4-0-1. Preq., Physical Education 233 or consent of Area Coordinator. Circuit training, interval training, calisthenics, isometrics are utilized preparing individuals to advance from one fitness level to another. Methods stress attaining and maintaining fitness.
- 235: Intermediate Racquetball.** 3 3/4-0-1 (2). Preq., HPE 135 or consent of Area Coordinator. Advanced skills and techniques and game strategies in racquetball.
- 240: International Folk Dance.** 3 3/4-0-1. Dances from various countries of the world are presented along with a study of the country and the people where dances originated.
- 241: Golf.** 3 3/4-0-1. Basic techniques, skills and rules of play are presented. Students provide own transportation to course used for play.
- 243: Fencing.** 3 3/4-0-1. The fundamental techniques, skills and rules of bouting are presented.
- 245: Social Dance.** 3 3/4-0-1. Instruction and practice in the fundamental social dance steps such as the waltz, foxtrot, rhumba, cha cha cha, in addition to currently popular dances.
- 250: Stunts, Tumbling, Floor Exercise.** 3 3/4-0-1. Instruction in basic stunts and tumbling skills and floor exercise composition.
- 251: Elementary Physical Education.** 12-3-3. Preq., HPE 200 and 300 or taken concurrently. To introduce students to a variety of physical activities and methods used in teaching and how to apply these through practical field experience.
- 261: Square and Folk Dance.** 3 3/4-0-1. Square and folk dances that are a part of American dance are included in the course.
- 262: Bowling.** 3 3/4-0-1. Instruction in the fundamental techniques, rules and etiquette of bowling with provisions for practical application. Lane fee required.
- 271: Tennis.** 3 3/4-0-1. Techniques, skills and rules are presented for the beginning player.
- 272: Badminton.** 3 3/4-0-1. The course is designed to include techniques, skills, and rules of the game for the beginning player.
- 273: Archery.** 3 3/4-0-1. Basic techniques, skills and rules of archery are presented.
- 280: Swimming.** 3 3/4-0-1. Open to students who do not know how to swim or who are unable to swim safely in deep water.
- 281: Swimming.** 3 3/4-0-1. Preq., Health and Physical Education 280 or comparable swimming skill. Instruction for the student in the basic swimming skills. Endurance and survival swimming.
- 284: American Red Cross Advanced Lifesaving.** 3 3/4-1-2. Preq. Health and Physical Education 281 or comparable swimming skills.
- 285: Water Safety Instructor.** 3 3/4-1-2. Preq., Current Advanced Lifesaving Certification and HPE 281 or comparable swimming skills. Techniques and skills required for American Red Cross WSI Certification.
- 286: Physical Education for Corrective Therapy.** 0-3-3. To familiarize students in the field of therapy for working with individuals of limited physical or mental resources as compared to normal.
- 290: Personal Health for College Students.** 0-3-3. To assist the student in acquiring accurate information regarding personal health and in understanding the relationship of health to everyday living.
- 291: School and Community Health.** 0-3-3. Preq., HPE 290 or consent of Area Coordinator. To familiarize the student with the

school health program, the organization, facilities, and services of community health.

- 300: Safety Education.** 0-3-3. A survey of the accident problem, the social and emotional aspects involved, and the application to home, community, and industrial life.
- 301: Curriculum Innovations, Instructional Devices and Lab Instruction in Drivers Education.** 3 3/4-3-4. In-depth study of curriculum materials and instructional devices and techniques including Simulation, Multimedia Driving Range, On-Street Instruction, and Motorcycle.
- 304: Organization and Administration of Intramural Sports.** 0-3-3. Preq., Sophomore standing. This course covers the organization and administration of high school and college intramural programs. The student is required to assist in intramurals at Tech.
- 305: Materials and Methods in Health Education in Schools.** 0-3-3. Preq., HPE 290, 291 and junior standing. Includes information relative to school health education program with emphasis on methods of instruction and use of materials in schools.
- 306: Principles and Practices of Football Coaching.** 0-2-2. Preq., junior standing. This course is designed to familiarize the student with various defensive and offensive systems that are used by coaches.
- 308: Principles and Practices of Baseball or Softball Coaching.** 0-2-2. Preq., junior standing. Fundamental skills of offense and defense, training procedures, scouting, strategy practice, and officiating.
- 312: Principles and Practices of Basketball Coaching.** 0-2-2. Preq., junior standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating.
- 313: Principles and Practices of Volleyball Coaching.** 0-2-2. Preq., junior standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating.
- 314: Principles and Practices of Track and Field Coaching.** 0-2-2. Preq., junior standing. Fundamental movements involved in the different events: (1) staffing for the different events; (2) training and practice; (3) officiating.
- 317: Camp Leadership.** 0-3-3. Preq., sophomore standing. A study of duties and responsibilities of camp counselors, leadership techniques in program activities and camp organization.
- 318: Sport Karate.** 3 3/4-0-1. Preq., HPE 218 or comparable karate experience. Tournament techniques, advanced formal exercise, offensive and defensive free style sparring techniques, biomechanical and physiological principles of training, rules and etiquette.
- 320: Organization and Administration of Health and Physical Education.** 0-3-3. Preq., junior standing, upper division. Development and practical application of physical education programs.
- 326: Applied Anatomy and Kinesiology.** 0-3-3. Preq., Zoology 225 & 226, junior standing, or consent of Area Coordinator. Analysis of movement based on a knowledge of anatomy and physiology as applied to the function of body mechanics.
- 340: Materials and Methods in Physical Education and Health Education for Elementary Schools.** 0-3-3. Preq., HPE 130. Designed to prepare the teacher for the direction of children in physical education and for developing in children desirable knowledge, skills and attitudes in health.
- 355: Community Centers and Playgrounds.** 0-3-3. The specific problems and programs unique to recreation centers and playgrounds, emphasizing techniques for administration and operation.
- 362: Bowling.** 3 3/4-0-1. Preq., HPE 262 or skill in basic bowling techniques. Instruction for individuals who know the fundamentals of bowling. Lane fee required.
- 370: Techniques and Methods of Teaching Rhythms.** 3 3/4-0-1. Techniques, methods and materials related to teaching rhythms in the elementary and high school.
- 371: Tennis.** 3 3/4-0-1. Preq., HPE 271 or skill in basic tennis techniques. Advanced skills and game strategy are stressed.
- 372: Badminton.** 3 3/4-0-1. Preq., HPE 272 or skill in basic badminton techniques. Advanced skills and game strategy are stressed.
- 404: Introduction to Community Recreation.** 0-3-3. A study of community recreation — its history, function in the community, organization and administration, programs, personnel and leadership, and recreation areas and facilities.
- 405: Athletic Injuries, Prevention, Diagnosis and Treatment.** 0-2-2. Training room procedures; treatment of injuries and rehabilitation; use of athletic training room equipment; use of protective equipment for all sports.
- 406: Leisure for the Retired.** 0-3-3. Course designed to prepare recreation majors in the skills and knowledge necessary for providing leisure experiences for the older retired person.
- 407: Physical Fitness, Development and Maintenance.** 3-2-2. The course will inform students of programs to develop maintain various aspects of physical fitness and the application of basic elements of physical fitness.
- 410: Building and Maintaining Recreational Facilities.** 0-3-3. The designing, building and maintenance of recreational facilities.
- 411: Current Theories and Practices in the Teaching of Rhythms.** 0-3-3. Basic theories, techniques, materials, and practices in the teaching of the various forms of movement to music are included in the course.
- 412: History of Sports.** 0-3-3. A study of sports from ancient to modern times.
- 414: Introducing Physical Education to the Exceptional Child.** 0-3-3. To familiarize students with the instruction of physical education to exceptional children.
- 415: Recreation Internship.** 15-3-6. Senior standing and consent of Area Coordinator. Practical experiences in various agencies, institutions, and community settings offering recreation and leisure services. Observation, participation, leadership opportunities.
- 418: Gross and Fine Motor Skills and Basic Health Processes in Preschool Handicapped Children.** 3-2-3. Emphasis on motor development, fundamental locomotor skills, manipulative abilities, and program design techniques for Preschool Handicapped Children. Basic health processes will also be studied.
- 419: Health and Safety Procedures for Severely/Profoundly Handicapped.** 3-2-3. Emphasis on knowledge of basic health and safety procedures needed to work effectively with children with serious handicaps. F.
- 433: Special Problems in Health and Physical Education.** 0-3-3 (9). Designed to deal with selected problems in Health and Physical Education.
- 457: Materials and Methods in Teaching Physical Education.** 3-3-4. Preq., HPE 320, 251, senior standing, upper division. Methods, materials and analytical skills used in teaching health and physical education. Practical application of methods, materials, and analytical skills.
- 504: Planning and Evaluating Parks and Recreation Services.** 0-3-3. Recreation planning as related to selections, acquisitions, planning, design and development of recreation areas and facilities.
- 505: Park Maintenance and Management Problems.** 0-3-3. An in-depth study of problems related to the maintenance and management of recreation/park areas and facilities, with student research into problems with special interest.
- 509: Tests and Measurement in Physical Education.** 0-3-3. Course designed to enable the student to learn the advanced processes in testing and measuring boys and girls at the elementary and high school level. The most important elements to be measured: strength, skills, coordination, and cardiovascular conditions.
- 516: Education for Physical Fitness.** 0-3-3. Factors involved in developing, maintaining and evaluating physical fitness. Emphasis is placed on individual exercise programs, cardiovascular risk

- factors, and the beneficial effects of exercise. **517: Organization and Administration of Physical Education.** 0-3-3. Routine specific administration problems of program, staff, equipment, policies, public relations and finance.
- 518: Recent Literature and Research in Physical Education and Recreation.** 0-3-3. Review and evaluation of reports of recent research in physical education, recreation, and related fields; review of reports of professional committees, conferences and year books.
- 519: Alcohol and Narcotics Education.** 0-3-3. Research and evaluation of the effects of alcohol and narcotics.
- 520: Motor Development and Learning.** 0-3-3. Nature of motor learning, factors affecting success in motor learning, application of principles to class organization, presentation of new materials, teaching the slow learner.
- 521: Behavior Impairment and Physical Education.** 0-2-2. Preq., HPE 414. Physical education for the severely handicapped. Course focus in on handicapped individuals with implications for teaching motor activities.
- 522: Observing and Teaching in Adapted Physical Education with the Behavior Impaired.** 3-0-1. Preq., and concurrent with HPE 521. Practicum in physical education for the severely handicapped.
- 523: Chronic Disability and Physical Education.** 0-2-2. The course focus is on individuals with chronic and permanent physical disabilities which affect motor performance with implications for selection of activities in physical education.
- 524: Observing and Teaching in Adapted Physical Education with the Chronically Disabled.** 3-0-1. Preq., and concurrent with HPE 523 Practicum in physical education for the chronically and permanently disabled.
- 525: Supervision of Physical Education.** 0-3-3. Techniques of supervision and their application in improving health and physical education programs in the elementary and high schools. Study of problems met by supervisors and methods of solving them.
- 526: Physiology of Exercise.** 0-3-3. Physiology, anatomy, and kinesiology used to assist the student in gaining an understanding of conditions and factors affecting the body functions during physical activity.
- 527: Foundations of Physical Education.** 0-3-3. Philosophy of physical education and of current trends and developments.
- 528: Administration and Organization of Physical Education in Elementary Schools.** 0-3-3. Techniques of organization and administration of a health and physical education program in the elementary school, with emphasis on the importance of the role of the special teacher and the classroom teacher.
- 529: Curriculum Construction in Physical Education.** 0-3-3. Basic principles of curriculum construction in the junior high and high school with special emphasis on current trends.
- 530: Administration of Recreation.** 0-3-3. A course designed to familiarize the student with the administrative problems in school and community recreation.
- 531: Physical Education Curriculum for the Handicapped.** 0-3-3. Needs of the physically and mentally handicapped as related to the physical education program. Study of specific activities, methods and evaluation.
- 532: Interscholastic Athletics.** 0-3-3. This course is designed to meet the needs of those persons preparing to coach and/or those already coaching high school athletic teams. It deals with state and national athletic association make-up, plus problems of scheduling, transportation, insurance, etc.
- 533: Problems in Health, Physical Education, Recreation and Athletics.** 0-3-3. The selection and study of problems in the fields of health, physical education, recreation, and athletics. Work will be one on an individual basis under the direction of the staff. May be repeated once for credit.
- 534: Mechanical Analysis of Motor Skills.** 0-3-3. Analysis of the various motor skills to determine their relationship to basic mechanical principles, anatomical and kinesiological factors, laws of physics, etc.
- 539: Sports Psychology.** 0-3-3. Course designed to explore the behavior of individuals participating in play, game and sports.
- 540: Sport Impact on Society.** 0-3-3. The basic premise of this course is to make the individual aware of the impact of sports upon the American culture with focus on competition, economics, mythology, race relations and the Olympic syndrome.
- 550: Current Trends in Health, Physical Education, and Recreation.** 0-3-3. A survey of current literature in health, physical education, and recreation with emphasis upon recent research studies.

HISTORY

- 101: World History to 1500.** 0-3-3. A survey of civilization of the world to 1500. Major emphasis on Western Civilization. Su,F,W,Sp.
- 102: World History since 1500.** 0-3-3. A survey of civilization of the world since 1500. Major emphasis on Western Civilizations. Su,F,w,Sp.
- 201: History of the United States, 1492-1877.** 0-3-3. A survey of American history from discovery through Reconstruction. Su,F,W,Sp.
- 202: History of the United States, 1877 to the Present.** 0-3-3. A survey of American history from Reconstruction to the present. Su,F,W,Sp.
- 300: The Eastern United States.** 0-3-3. By permission only. A 21-day field study of the region east of the Mississippi River, with lectures and required reading. Su, odd.
- 301: The Western United States.** 0-3-3. By permission only. A 21-day field study of the region west of the Mississippi River, with lectures and required reading. Su, even.
- 310: American Military History to 1900.** 0-3-3. A survey of the major wars and campaigns to 1900 including their causes and significance. F.
- 311: American Military History, 1900 to the Present.** 0-3-3. A survey of the major wars and campaigns since 1900 including their causes and significance. W.
- 328: History of the Ancient Near East.** 0-3-3. A survey of the civilization of Egypt and Mesopotamia from earliest times to the Arab conquest in the 7th century. F, even.
- 329: History of the Ancient Near East.** 0-3-3. A survey of the civilizations of the Hittites, Hebrews, Canaanites, Philistines, Phoenicians, Carthaginians, Lydians, and Persians to the middle of the 7th century. W, even.
- 330: The Intellectual and Cultural History of the Western World from the Hellenic Era to the End of the Middle Ages.** 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Greeks to the beginning of the Renaissance. F, odd.
- 331: The Intellectual and Cultural History of the Western World in Modern Times.** 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Renaissance to the present. W, odd.
- 332: History of Greece.** 0-3-3. A political, economic, social, and cultural study of Greek history from earliest beginnings through the Hellenistic era. F, odd.
- 333: History of Rome.** 0-3-3. A survey of the political, economic, social, and cultural history of Rome from earliest beginnings through the fifth century A.D. W, odd.
- 334: Medieval Europe.** 0-3-3. A survey of Europe from the decline of Rome to the advent of the Renaissance. F, even.
- 335: Renaissance and Reformation.** 0-3-3. A study of the political, economic, and cultural evolution of Europe from 1300 to 1648. W, even.
- 336: History of the Modern Near East.** 0-3-3. A history of the Arabic world from the fifteenth century to the present. Sp.

- 350: The American Frontier.** 0-3-3. A study of the American frontier from the colonial period to 1890, with special emphasis on social and economic growth. Sp.
- 360: History of Traditional China.** 0-3-3. A study of the development of political, social, and cultural institutions of China from antiquity to the establishment of the Manchu dynasty. F, even.
- 361: History of Modern China.** 0-3-3. A history of China from 1644 to the present with emphasis on China's response to Western influence. W, even.
- 370: History of Traditional Japan.** 0-3-3. A study of the historical development of Japan from the earliest times to 1603. F, odd.
- 371: History of Modern Japan.** 0-3-3. A study of the political, social and intellectual history of Japan from 1603 to the present. W, odd.
- 380: History of England to 1688.** 0-3-3. A study of the development of the English people from the earliest times to the accession of William and Mary. F.
- 381: History of England since 1688.** 0-3-3. A study of English political, social, and economic institutions and policies in the eighteenth, nineteenth, and twentieth centuries. Sp.
- 385: Hitler's Germany.** 0-3-3. A study of German history since 1862 with special emphasis on the rise and impact of Adolph Hitler and National Socialism. Sp., odd.
- 402: History of American Foreign Policy.** 0-3-3. A study of the development and expansion of American foreign policy from colonial beginnings to the present. F, even.
- 410: History of Modern Russia.** 0-3-3. A survey of Russian history with special emphasis on twentieth century developments. F.
- 415: History of the Christian Church.** 0-3-3. A study of the rise and expansion of the Christian Church and its enormous influence on world history. F,W, even.
- 418: Europe in the Era of the French Revolution and Napoleon.** 0-3-3. A study of early modern Europe during the transition from the aristocratic era of the Old Regime to the Age of Revolutions.
- 419: Nineteenth Century Europe.** 0-3-3. A survey of political, economic, and cultural developments in Europe from the defeat of Napoleon I to the outbreak of World War I.
- 420: Twentieth Century Europe.** 0-3-3. A survey of political, economic, and cultural developments in Europe since the outbreak of World War I.
- 423: The Civil War and Reconstruction.** 0-3-3. A study of American history from the beginning of the Civil War to 1877.
- 446: History of the Far East.** 0-3-3. A comparative study of the traditional cultures of the Far East and their responses to the western impact after 1800.
- 450: History of the Old South.** 0-3-3. A study of the political, economic, and social development of the ante-bellum South. Su, odd; Sp, even.
- 460: History of Louisiana.** 0-3-3. A study of Louisiana history from early explorations to the present. Su,F,W,Sp.
- 465: Early 20th Century America.** 0-3-3. A study of the social, political and economic development of the United States from 1900 to the end of the New Deal.
- 466: Contemporary America.** 0-3-3. An examination of United States history from World War II to 1960, emphasizing the expansion of America's role in world affairs.
- 467: Vietnam, Watergate and After: America, 1960 to the Present.** 0-3-3. An intensive study of United States history from the troubled 60's to the present. Sp, odd.
- 472: History of American Ideas.** 0-3-3. A survey of the major forces and ideas that have shaped American history. W, even.
- 475: Women in American History.** 0-3-3. A study of women's contributions to American history with special emphasis on the role of women in contemporary society. Sp,W.
- 480: History of Science.** 0-3-3. Preq., advanced history courses and six hours of science. A descriptive survey of the history of science and its civilizational implications. Sp.
- 481: The British Empire.** 0-3-3. A study of the rise and fall of the British Empire, with primary emphasis on South Africa, India, Canada, Australia, and New Zealand.
- 500: American Historiography.** 0-3-3. A study of the leading American historians and their contributions to the field of history.
- 510: Independent Study and Research.** 9-0-3. Independent reading and research in selected history topics.
- 515: Seminar in Louisiana History.** 0-3-3. Selected reading and research in Louisiana History, with particular emphasis on the twentieth century.
- 520: Colonial America.** 0-3-3. A study of colonial life from European colonization through the American Revolution.
- 521: The Federal Period, 1783-1825.** 0-3-3. A study of the formative years of the United States from the Confederation period to the rise of Jacksonian Democracy.
- 522: The Middle Period, 1825-1860.** 0-3-3. A study of the growth and development of the United States from Jacksonian Democracy to the Civil War.
- 524: The Emergence of Modern America, 1876-1900.** 0-3-3. A study of the new American nation from the end of Reconstruction to its emergence as a world power.
- 525: Seminar in Recent American History.** 0-3-3. Selected reading and research in contemporary America, with particular emphasis on events since World War II.
- 530: Seminar in Ancient History.** 0-3-3. Selected reading and research topics in Ancient History.
- 535: Seminar in Medieval History.** 0-3-3. Selected reading and research topics in Medieval History.
- 540: Recent European History.** 0-3-3. An intensive study of a restricted subject in recent history (to be chosen by the instructor), with an introduction to scholarly research in this field.
- 545: Seminar in Near East History.** 0-3-3. Independent study, research, and writing in Near East History, with an introduction to scholarly research in this field.
- 548: Seminar in East Asian History.** 0-3-3. Selected reading and research topics in East Asian History.
- 550: Seminar in British History.** 0-3-3. Selected reading research topics in British History.

HOME ECONOMICS

- 100: Marriage and Family Living.** 0-3-3. Significant factors for successful marriage, marital adjustment, and family living. Su,F,W,Sp.
- 103: Nutrition and Weight Control.** 0-1-1. Designed for non-majors. Health and Physical Education 233 recommended to parallel course. Personalized weight control program based on behavior modification, energy balance and recommended nutrients.
- 112: Basic Food Science.** 6-1-3. Use of food science principles in food selection and preparation procedures.
- 117: Women Studies.** 0-3-3. Roles of women in families, education, employment and the community. Influences on changing roles. Emphasis on career opportunities and personal development.
- 118: Clothing Construction.** 6-0-2. Principles of basic construction and fitting and the use of commercial patterns to create clothing suitable to the individual.
- 127: Professional Home Economics.** 0-1-1 (Pass/Fail) Introduction to roles and responsibilities of the professional home economist in dietetics, fashion merchandising, education, and consumer services. F.
- 128: Clothing Selection.** 0-2-2. Consideration of appropriate and becoming clothing for individuals with recognition of social, economic, and psychological factors. Design and manufacture of clothing. F,W,Sp.
- 158: Survey of the Fashion Industry.** 0-2-2. Preq., Home Economics 128. Overview of fashion industry and fashion marketing

techniques. Emphasis on history, design, production, and retail phases of business. F,W,Sp.

- 201: Introduction to Child and Family Development.** 0-3-3. Basic principles and sequences in human development from prenatal period through aging years. Emphasis on developmental tasks, forces influencing development, and the family life cycle. F,W.
- 202: Collegiate Cooking.** 3-2-3. Designed for non-majors to assist in preparing appetizing and nutritious meals using basic techniques and managing time, energy, and money.
- 203: Nutrition.** 0-3-3. Functions of various nutrients and their interrelationships in children and adults with emphasis on personal food habits and selection. Su,F,W,Sp.
- 207: Professional Dietetics.** 0-1-1. Dietitian's role in providing quality nutritional care for individuals and groups of people. F.
- 212: Food and the Consumer.** 6-1-3. Preq., Home Economics 112. Considerations in food management, including convenience, legislation, consumer acceptability, spending patterns, and lifestyles.
- 213: Introduction to Diet Therapy.** 0-3-3. Preq., Home Economics 203. Introduction to dietary modification throughout the human life cycle and in disease states.
- 218: Consumer Clothing.** 3-0-1. Preq., Home Economics 118. Development of judgment, creativity and skill in construction. Emphasis on use of special fabrics, decorative techniques and construction techniques.
- 219: Textiles.** 0-3-3. Study of properties and production of textile fibers. Consumer approach to fabric selection, use and care.
- 222: Food Cost Control.** 0-2-2. Records and analysis as applied in food cost control in the food service organization.
- 223: Nutrition Education.** 0-2-2. Basic principles of nutrition with special emphasis on the school-age child. Techniques of presenting nutrition information to children. (Planned for non-majors.) Su,F,W,Sp.
- 228: Consumer Analysis of Fashion.** 0-2-2. A consumer and merchandising approach to clothing needs of the family and other selected groups. Open to non-majors.
- 233: Creative Experiences in Nutrition.** 3-0-1. Preq., or Coreq., Home Economics 223 or 203. Application of nutrition principles to the preschool and school age child. Emphasis on nutrition related activities for various age groups.
- 236: Household Equipment.** 0-3-3. Proper selection, use, and care of equipment. Wiring and lighting of the home, kitchen planning.
- 242: Food Service Supervision.** 3-2-3. Problems in directing, supervising and controlling personnel, sanitation, purchasing, and storage for small food service organizations.
- 243: Health Care Delivery Systems.** 0-3-3. Aspects of current health care delivery systems in the United States, with a focus on the delivery of nutrition care services. F.
- 246: Microcomputers in Home Management.** 3-2-3. An introduction to the use of microcomputers and microprocessor controlled appliances for more effective management of home and family related tasks.
- 256: Personal and Family Management.** 0-3-3. A systems approach to the management of personal and family resources with emphasis on time and energy. F,W,Sp.
- 258: Fashion Merchandising Fundamentals.** 0-2-2. Processes of buying and merchandising of fashion. The merchandising function is studied with emphasis on the market and instore operations of the buyer.
- 282: Foodservice Field Experience.** 3-9 hours credit. (18). Supervised experience in commercial, institutional foodservice.
- 300: Parenting.** 0-3-3. Study of the parenting role. Emphasis on parent-child interaction and relationships as they influence growth. Open to non-majors.
- 301: Early Childhood Development.** 3-2-3. Preq., Psychology or Home Economics 201. The development of young children. Theory and practice are correlated through readings, class discussions, and nursery school laboratory experiences.
- 307: Family Interpersonal Relationships.** 0-3-3. The study of interaction between individuals with application to family dynamics, personal relationships, professional interaction, and job competency.
- 308: Fashion Buying.** 0-3-3. Preq., Home Economics 158, Marketing 235. Buying function in fashion retail organizations. Includes merchandising concepts essential for buyers.
- 311: Pre-reading in Early Childhood Education.** 0-3-3. Development of early language skills. Emphasis on the preschool language arts curriculum as preparation for reading. W.
- 313: Introduction to Diet Therapy.** 0-2-2. Principles of normal nutrition adapted to human needs in stress and illness. To be taken concurrently with Medical Records Administration 102.
- 327: Demonstration.** 6-0-2. Preq., Speech 110. Improvement of communication by practical application of demonstration techniques. For teachers or home economists in business.
- 338: Tailoring.** 6-0-2. Preq., Clothing construction skill. Fundamental construction processes reviewed and basic principles of tailoring applied in the construction of tailored garments.
- 342: Quantity Cookery.** 6-2-4. Preq., Home Economics 212. Experience in food preparation and service, menu planning, and methods of purchasing for institutions.
- 348: Fashion Merchandising and Computer Management.** 1-2-2. Procedures and task management for the fashion retailer through computer application.
- 352: Quantity Cookery.** 0-2-2. Coreq., Home Economics 372. Quantity food preparation and service, menu planning, and methods of purchasing for food service systems.
- 358: Fashion Merchandising Selling Experience.** 6-1-3. Preq., Home Economics 348, Marketing 235 and 307 or consent of instructor. Supervised experience in salesmanship and other phases of merchandising in retail firms cooperating with the College of Home Economics.
- 362: Computer Assisted Food Service Management.** 3-1-2. Computer applications in food service management and operations research.
- 372: Quantity Food Production Laboratory.** 3-1-2. Coreq., Home Economics 352. Quantity food production supervised experience.
- 382: Introduction to Food Service Organization and Administration.** 4-0-1. Application of organization and administration principles to an institutional food service setting.
- 388: Fashion Coordination and Promotion.** 0-3-3. Coordination of buying, selling, promoting, display, and advertising functions in retail store merchandising.
- 400: Contemporary Family Living.** 0-3-3. Family living concerned with stages of family life with emphasis on issues affecting families. W.
- 401: Creative Activities and Organization of Preschool Programs.** 0-3-3. Preq., Home Economics 301 or consent of instructor. Organization of preschool programs with emphasis on creative activities, materials and facilities.F.
- 404: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Coreq., Home Economics 433. Physical and chemical significance of various nutrients and their interrelationships and applications to humans.
- 405: Home Economics Methods.** 0-3-3. An understanding of the home economics education programs with emphasis on philosophy, principles and methods of teaching in home economics areas.
- 406: Special Problems in Home Economics.** 1-3 hours credit. (12). Special offerings selected by student with approval of advisor. May be repeated for credit with Dean's permission.
- 410: Multi-Cultural Family Studies.** 0-3-3. Cross-cultural overview of family patterns, child rearing, nutrition and food habits, housing, and fashion trends. Su.
- 411: Methods in Early Childhood Education.** 3-2-3. Preq., Home Economics 301. Important factors in planning for preschool children. Emphasis on objectives, planning nursery school experiences, and evaluation. W.

- 412: Experimental Foods.** 6-1-3. Preq., Home Economics 112 and 212. Study of the chemical and physical nature of foods. Individual investigations of selected problems.
- 414: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Coreq., Home Economics 483. A continuation of Home Economics 423.W.
- 416: Home Furnishings.** 0-2-2. A study of period furniture and styles, china, glassware, silverware and other accessories for the home.
- 419: Textile Products for Apparel and Home Furnishings.** 0-3-3. Preq., Home Economics 219 or consent of instructor. Study of textile products in relation to end-use, product quality, technology, trade regulations, and interplay of fashion for apparel and home furnishings industries.
- 421: Student Teaching in Early Childhood Education: Nursery School.** 16-1-6. Preq., Home Economics 301 and 411. An intensive practical experience in supervised nursery school teaching. F,W,Sp.
- 423: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Coreq., Home Economics 493. A continuation of Home Economics 414.S.
- 426: Housing.** 0-3-3. Physical aspects of planning a house. History of housing. Social aspects such as zoning, government regulations, etc.Sp.
- 428: Dress Design and Pattern Construction.** 6-1-3. Preq., Art 175, Home Economics 118, or consent of instructor. Flat pattern and draping techniques in developing original design. Emphasis on appropriate use of line, color, and texture.
- 431: Infant Development.** 0-3-3. Preq., Psychology 204 or equivalent. Prenatal and infant development. Emphasis on influence of family and other caregivers.
- 433: Nutrition Theory Laboratory.** 3-0-1. Coreq., Home Economics 404. Field experience applications of normal and clinical nutrition theory to humans.
- 436: Home Management.** 12-2-3. Preq., Home Economics 212, and advanced junior standing. Residence experience involving planning, coordinating, and evaluating all phases of home management. (Six weeks only.)
- 437: Introduction to Clinical Practice.** 20-2-6. Developing practical skills in administrative and therapeutic dietetics. Supervised experience directed by registered dietitian. Applications required.
- 438: Historic Costume.** 0-3-3. Development of costume from ancient Egypt through the 19th century, with emphasis on social, economic, and aesthetic influences of its design.
- 443: Applied Human Nutrition.** 4-3-4. The application of basic nutrition principles to determining nutrient needs and designing appropriate food patterns for individuals at various stages in the life cycle and at various economic levels. Supervised experience.
- 447: Dietetic Field Experience.** 40-1-9. Application of knowledge in administrative and therapeutic dietetics in the clinical setting. Supervised experience directed by registered dietitian. Applications required.
- 451: The Puppetry Arts and Creative Teaching.** 0-3-3. In-depth study of puppets and the puppetry arts with practical experiences in techniques and uses of puppets as a tool in teaching, therapy and creativity.
- 452: Food Service Administration.** 16-2-6. Principles of organization and management applied to food service systems. F.
- 453: Patient Nutritional Care.** 8-3-5. Preq., Home Economics 443. Dietary modifications used in the treatment of disease conditions with emphasis on individualized patient nutritional care. F.
- 456: Consumer Decision Making.** 0-3-3. Behavior of the consumer with reference to economic decision making and expenditure patterns relevant to current lifestyles.
- 457: Orientation to Employment.** 0-1-1. Preparation to assume professional roles in the field of home economics. Designed to be taken one or two quarters prior to graduation. F,W,Sp.
- 462: Food Systems Administration Seminar.** 0-2-2. Preq., H EC 452 or consent of instructor. Investigation of current literature and practices concerning selected problems in food systems administration. W.
- 463: Patient Nutritional Care.** 20-3-8. Preq., Home Economics 453. A continuation of Home Economics 453. W.
- 473: Field Training-Clinical Dietetics.** 16-1-5. Working experience as a clinical dietitian in health care programs. Sp.
- 482: Field Training-Food Systems.** 16-1-5. Working experience as an Administrative Dietitian in Food Service Systems. Sp.
- 483: Nutrition Theory Laboratory.** 3-0-1. Coreq., Home Economics 414. A continuation of Home Economics 433. W.
- 488: Visual Merchandising.** 3-2-3. Preq., Art 175 or 115, Marketing 235 or consent of instructor. Promotion of products through visual merchandising including fashion show production, special events, display, selling techniques and other promotional activities in industry and retailing.
- 493: Nutrition Theory Laboratory.** 3-0-1. Coreq., Home Economics 423. A continuation of Home Economics 483. Sp.
- 498: Fashion Merchandising International.** (Pass-Fail) 3 to 12 hours undergraduate credit and 3 to 9 hours graduate credit. European fashion study tour (3 hrs. Undergraduate or graduate credit.) Sp. Supervised paid work experience in metropolitan fashion center (9 hrs. undergraduate or 6 hrs. graduate credit.F,Sp.) Applications required.
- 500: Improving Instruction in Family Relations.** 0-3-3. A study of the methods of teaching family relations including selection and organization of subject matter. Special attention will be given to the preparation of units of work and lesson plans.
- 501: Contemporary Issues in Infancy and Preschool Years.** 0-3-3. Seminar in current research in child development with emphasis on the infancy and preschool years.Sp.
- 503: World Nutrition Problems.** 0-3-3. A study of world wide nutritional problems with special emphasis on recent research in this field. In addition to class work, each student makes an independent investigation of one topic in the field of nutrition. Open to non-majors and especially recommended for teachers.
- 504: Methodology in Home Economics Research.** 0-3-3. Techniques and principles of design for experimental and educational research.
- 505: Vocational Home Economics Supervision.** 0-3-3. The value of supervision with emphasis on responsibilities and techniques desirable for effective working relationships with student teachers.
- 506: Special Problems in Home Economics.** 1-3 hours credit (12) Directed study of advisor approved topics. May be repeated for credit with Dean's permission. F,W,Sp,Su.
- 508: Advanced Techniques in Specialized Clothing Construction.** 6-1-3. A study of clothing production and consumer motivation. Special problems in clothing construction are chosen to incorporate new techniques. F.
- 509: Advanced Textiles.** 0-3-3. A study of recent trends and developments in textiles from the standpoint of their chemical composition and physical properties. Sp.
- 510: The Family in Middle and Later Years.** 0-3-3. Study of changes, needs and adjustments during the middle and later years of the family.
- 512: Food Science and Technology.** 0-3-3. Recent developments in science and technology underlying current practices in quality preservation, and problems in nonbacterial spoilage mechanisms of food. Includes survey of freeze drying, irradiation, antibiotics, antioxidants, enzymes, food additives, and packaging.
- 515: Home Economics Teaching Practicum.** 10-1-3. Principles and techniques in teaching a specific area of home economics at the post secondary level. Students work with faculty and undergraduate courses in area of specialty. Applications required.
- 523: Recent Advances in Client Nutritional Care.** 0-3-3. Preq., Home Economics 423. Current developments in normal nutrition, nutritional assessment and diet therapy.
- 528: Consumer Motivation and Factors in Fashion.** 0-3-3. Relationship of consumer behavior to fashion; analysis of factors

relative to production, distribution, and consumption of apparel and textiles.

- 532: Food Service Organization and Management.** 0-3-3. Preq., Home Economics 342. Quantity food service management utilizing financial controls and computer assistance.
- 533: Vitamins and Minerals in Human Nutrition.** 0-3-3. Preq., Home Economics 423. Sources, properties and functions of vitamins and minerals in human nutrition.
- 551: Research and Thesis.** 3 hours credit or multiples thereof. Maximum credit is 6 hours.
- 562: Trends in Food Systems Administration.** 0-3-3. Preq., Home Economics 352. Seminar on current topics in food systems administration with emphasis on students' areas of interest.

HORTICULTURE

- 100: Horticulture Laboratory.** 3-0-1-(3). A series of exercises, planned on a seasonal basis, to provide experience in horticultural practices. F,W,Sp.
- 103: Basic Floral Design.** 0-1-1. Design, mechanics and construction of simple floral pieces for retail floristry. F.
- 200: Design Laboratory.** 3-0-1-(3). Exercises in commercial floral design and/or landscape design. Su,F,W,Sp.
- 201: Vegetable Growing.** 0-2-2. Methods and practices of home and commercial vegetable production, with special emphasis on those produced in the South. Sp.
- 205: Fruit Growing.** 0-2-2. Home and commercial production of tree fruits, small fruits, and nuts adapted to the South. W, odd.
- 210: Flower Growing.** 0-2-2. Principles and practices involved in growing garden and green house flower crops. F, odd.
- 215: Flower Arranging.** 3-1-2. Element and principles of contemporary American amateur flower arranging. Su,F.
- 220: Elementary Landscape Design.** 0-3-3. Elements and principles of design as applied to the home and city landscaping.
- 300: Advanced Horticulture Laboratory.** 9-0-1-(4). Field trips to experiment stations, large wholesale florists and nurseries, and large horticultural areas.
- 302: Ornamental Plants.** 0-3-3. Woody and herbaceous ornamental plants in landscaping.
- 307: Landscape Design.** 3-2-3. Elements and principles of design as applied to small parks, institutional grounds, and other large areas. F,Sp.
- 311: Japanese Flower Arranging.** 0-1-1. Classical and modern Japanese flower arranging as it is practiced by Americans. W, even.
- 315: Plant Propagation.** 0-2-2. Principles and practices of sexual and asexual methods of propagating horticultural plants. F, odd.
- 350: Home Horticulture.** 3-1-2. House plants, garden flowers, vegetable gardening and home landscaping. Not open to Horticulture majors. W,Sp,Su.
- 400: Special Problems in Horticulture.** 3-0-1-(3). Preq., senior standing as a horticulture major or consent of instructor. F,W,Sp.
- 403: Commercial Floral Design.** 0-1-1. Principles and practices of commercial floral design as practiced by the florist industry. Sp.
- 404: Creative Floral Design.** 6-1-3. Original designs executed by the students. Mechanics are devised and sketched, directions for construction are formulated and written for a portfolio. Sp, even.
- 440: Horticultural Production and Sales.** 0-3-3. Production, handling and sales practices in the nursery, greenhouse, and garden center; retail and wholesale floristry techniques.

INDEPENDENT STUDY

- 498-499: Readings and Research-Major Field.** 9-0-3 each. Preq., admission to Independent Study program. Departmental honors course for independent research and reading. Offered by

each department in the College of Arts and Sciences. Su,F,W,Sp.

INDUSTRIAL ENGINEERING.

- 100: Introduction to Industrial Engineering.** 3-0-1. Survey of topics to introduce the student to the profession, the department and the curriculum.
- 201: Industrial and Systems Engineering.** 0-3-3. Preq., sophomore standing. An overview of the application of engineering analysis and design principles to industrial and human activity systems. F.
- 301: Industrial Cost Analysis.** 0-3-3. Analysis and control of manufacturing costs.
- 400: Engineering Statistics.** 0-3-3. Preq., Mathematics 231. Application of probability and distribution theory to various branches of engineering.
- 401: Engineering Statistics.** 0-3-3. Preq., Industrial Engineering 400. Inferences concerning proportions, regression analysis, analysis of variances, quality control, reliability, and life testing.
- 402: Introduction to Operations Research.** 0-3-3. Preq., Industrial Engineering 400. Inventory theory, replacement theory, waiting lines, game theory, allocation and sequencing.
- 404: Operations Research.** 0-3-3. Preq., Industrial Engineering 402. Industrial engineering applications of dynamic programming, critical path methods, projects evaluation review technique (PERT), and computer simulation of large systems.
- 408: Facilities Planning.** 0-3-3. Preq., Mechanical Engineering 251 and Industrial Engineering 201. Detail planning for plant location, buildings, services, materials handling and transportation.
- 409: Production Engineering.** 3-2-3. Preq., Mechanical Engineering 251. Methods engineering, work measurement, and production standards.
- 411: Operations and Facilities Design.** 0-2-2. Preq., Industrial Engineering 400, 408 and 409. Introduction to industrial engineering systems design. Selection and analysis of an engineering problem from industry or any other field where industrial engineering techniques are applied.
- 412: Operations and Facilities Design.** 0-2-2. Preq., Industrial Engineering 411. The development of a solution to the engineering problem started in Industrial Engineering 411.
- 424: Seminar.** 0-1-1. Preq., senior standing. Instruction and practice in conference-type discussions of technical and professional matters of interest to industrial engineers.
- 425: Industrial Safety.** 0-3-3. Preq., junior standing. Principles of domestic and industrial safety.
- 427: Construction Safety.** 0-3-3. Preq., junior standing or consent of instructor. Fundamentals of construction safety.
- 430: Fire Protection.** 0-3-3. Consent of instructor. The study of fire, potential fire hazards, and fire detection and extinguishing systems.
- 450: Special Problems.** 1-3 hours credit. Preq., Senior standing and consent of instructor. Selected topics of current interest in Industrial Engineering not covered in other courses.
- 502: Operations Research.** 0-3-3. Preq., Graduate standing. Applications of linear programming to industrial systems, such as production and inventory control. Sensitivity analysis. Transportation and transshipment algorithms. Parametric linear programming. Convex and integer programming.
- 504: Systems Simulation.** 0-3-3. Preq., Industrial Engineering 400, or equivalent. The use of digital computer programs to simulate the operating characteristics of complex systems. Statistical considerations in sampling from a simulated process.
- 505: Queuing Theory.** 0-3-3. Preq., Industrial Engineering 501 or consent of instructor. Optimizing operating conditions for systems involving waiting lines. Single and multichannel models. Application to maintenance and customer service, shop scheduling and inventory control.

- 506: Dynamic Programming.** 0-3-3. Preq., Graduate standing. The principles of optimality. One- and two-dimensional processes. Markovian decision processes. Lagrange multiplier technique.
- 507: Engineering Administration.** 0-3-3. Preq., graduate standing or consent of instructor. Organization of the engineering function. Measurement and evaluation of engineering activities. Project management and control. Development of engineering managers.
- 508: Human Factors in Engineering Systems.** 0-3-3. Preq., graduate standing or consent of instructor. Testing and instrumentation of human response to environmental conditions. Designing equipment, work place and work environment for economy and effectiveness of human work systems.
- 509: Advanced Engineering Economy.** 0-3-3. Preq., Industrial Engineering 502 or equivalent. Effect of income tax on decision making. Retirement and replacement analysis. Capital management. Elements of economic measurement, analysis and forecasting in the face of uncertainty.
- 510: Advanced Work Measurement.** 0-3-3. Preq., Industrial Engineering 409, or consent of instructor. Advanced methods improvement and work measurement techniques. Design of complex work systems. Work sampling, construction of standard data and mathematical models of work systems.
- 512: Reliability Engineering.** 0-3-3. Preq., Industrial Engineering 400. Application of statistical theory in engineering design. Testing methods for determining reliability. Design of components and assemblies for reliability.
- 513: Inventory Control.** 0-3-3. Preq., Industrial Engineering 400 or equivalent. Analytical methods of determining reorder size and minimum points of various inventory system. Mathematical models with restrictions and quantity discount. Forecasting techniques and production smoothing.
- 514: Industrial Statistics.** 0-3-3. Preq., Industrial Engineering 400 or equivalent. Application of statistical techniques to industrial problems, relationships between experimental measurements using regression, correlation theories and analysis of variance models.
- 520: Graph and Network Analysis.** 0-3-3. Preq., Industrial Engineering 400. Basic Concepts of graph theory and networks, their applications to production scheduling, transportation models, and other systems.
- 521: Methods of Optimization.** 0-3-3. Preq., Graduate standing and FORTRAN IV. District elimination methods of sequential search, even-block search, Fibonacci search and golden section and odd-block search. Pattern search, gradient method and geometric programming.
- 524-525-526: Graduate Seminar.** 0-1-1 each. Critical group examination of the subject matter currently developed in the literature related to industrial engineering and operations research.
- 529: Industrial Hygiene Engineering.** Preq., graduate standing or consent of instructor. Recognition, evaluation and control of environmental factors in the work place.
- 550: Special Problems.** 1-4 semester hours credit. Advanced problems in industrial engineering.

INSTRUMENTATION TECHNOLOGY

- 201: Instrument Maintenance and Calibration.** 3-2-3. Preq., Electro-Technology 270. Instruction and practical laboratory experience in the mechanical and electrical maintenance and calibration of industrial instruments. Introduction to the standards laboratory, and awareness of the importance of traceable calibrations. Sp.

JOURNALISM

- 101: News Writing.** 0-3-3. May be taken with English 101. Beginning course in news writing. Work on "leads" and other newspaper writing basics. Typing ability required. F.

- 102: News Writing.** 0-3-3. Preq., Journalism 101. To involve principles of interviewing, advanced reporting and specialty writing such as police reporting, consumer reporting and coverage of public affairs. W.
- 310: Copy Editing.** 0-3-3. Preq., Journalism 101. Course dealing with methods of editing copy and the writing of headlines. W.
- 311: Advanced Copy Editing.** 0-3-3. Preq., Journalism 310. Techniques of newspaper makeup and layout; includes writing headlines, editing wire copy, cropping and sizing photography, principles of makeup and dummied pages. Sp.
- 320: Feature Writing.** 0-3-3. Preq., Journalism 101. Practical instruction in gathering material for "human interest" and feature articles of various types for magazines as well as newspapers. Sp.
- 330: Editorial Writing.** 0-3-3. Preq., Journalism 101. Course in the study of fundamentals and practice in editorial writing. Course includes units on recent history and current events. W.
- 350: Practical Reporting.** 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, and 310. Writing of articles for the university newspaper upon assignment or consultation with faculty supervisor. May be repeated for two additional semester hours credit. Su,F,W,Sp.
- 353: General Newspaper Work.** 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, 310. Practical lab work on university newspaper. May be repeated for two additional semester hours credit. F,W,Sp.
- 355: Practical Reporting.** 6-0-2. Open to majors and minors only. Preq., Journalism 101 and 310. Practical lab work on The Tech Talk. May be repeated for two additional semester hours credit. F,W,Sp.
- 360: Advertising.** 0-3-3. Fundamental study of advertising principles, including information on major media. F.
- 364: News for Radio and Television.** 0-3-3. Preq., Journalism 101 or equivalent experience. The gathering and preparation of news and editorial material for broadcast by radio and television.
- 374: Industrial Publications.** 0-2-2. Study of the purposes, style, content and means of producing house organs and business periodicals of several types. W.
- 375: People and Events.** 0-3-3. Creative writing, as it applies to magazines and newspapers. A "how-to-get-published" primer, with oral and written critiques of work. F.
- 400: Media and the Law.** 0-3-3. Preq., 12 hours of journalism. Emphasis on legal rights, responsibilities related to the media, and the public's right to know. Media court cases to be considered. Sp, Su.
- 450: Public Relations.** 0-3-3. Comprehensive approach into diverse functions of the practitioner as a specialist, analyst and counselor relevant to public relations' role involving monitoring public opinion. Sp.
- 451: Advanced Practical Reporting.** 6-0-3- (9). Junior and Senior majors only and by permission of instructor. Consists of practical news work in professional media, work ranging from basic news beat coverage to news writing. Su,F,W,Sp.
- 455: Scholastic Journalism.** 0-3-3. Preq., Journalism 101 or permission of instructor. A practical course in basic techniques designed to aid secondary school journalism curriculum development with emphasis on advising publications.

LIBRARY SCIENCE

Library Science courses numbered 300 and 400 are open only to junior and seniors.

- 201: Books and Materials for the Elementary School.** 0-3-3. A study of the reading interests of children. Selection and evaluation, sources and use of materials with children. Extensive reading of children's books. Su,F,W,Sp.
- 210: Libraries and Librarianship.** 0-3-3. Introductory survey of libraries and librarianship designed for students entering the profession. F.
- 301: School Library Administration.** 0-3-3. Administration of the school library with emphasis on planning for effective use of

library services and materials in cooperation with instructional staff. Su, even; F.

- 302: Acquisition and Organization of Library Materials.** 0-3-3. Preq., Library Science 301 or consent of instructor. Basic principles of cataloging and classifying print and non-print materials. Study of Dewey Decimal Classification System. Su, odd; W, Sp.
- 303: Introduction to Reference Materials and Service.** 0-3-3. Selection, evaluation and use of basic reference works. Practice in solution of typical reference problems. Emphasis on school library as learning center. Su, F, Sp.
- 305: Books and Materials for the Young Adult.** 0-3-3. Selection and evaluation, sources and use of print and non-print materials that meet the needs of the young adult. Extensive reading of books for the young adult. Su, F, W, Sp.
- 315: Advanced Reference and Bibliography.** 0-3-3. A study of important reference works in all fields of knowledge with emphasis on bibliography.
- 330: Problems in Librarianship.** 0-3-3. Preq., 12 hours of Library Science. Investigation of problems relating to school library learning centers. Sp.
- 410: Selection of Books and Audio-Visual Materials.** 0-3-3. Methods and criteria for selection of print and non-print materials in all types of libraries. W.
- 440: Library Automation.** 0-3-3. Preq., Library Science 210, 302 or consent of instructor. Planning and implementing automated library procedures using the COBOL programming language and IBM 360 series computer. W.
- 450: Literature for Children.** 0-3-3. Designed to relate understanding of child development to knowing and using print and non-print materials with children. Practical experience in storytelling and creative drama. Su, Sp.
- 451: Workshop in School Librarianship.** 0-3-3. Preq., professional school experience and consent of instructor. An in-depth study of school library learning center programs. May be repeated for credit when topics vary. Su.

LIFE SCIENCES

- 101: Orientation.** 0-1-1. Basic rules, policies, history, and organization of the University with special application to life sciences. F, Sp.
- 200: Introduction to Environmental Sciences.** 0-3-3. Basic laws, principles and issues related to the causes, effects and controls of environmental problems. Man-environment interaction. Su, F, W, Sp.
- 300: Principles of Genetics.** 0-3-3. Fundamental laws of heredity as applied to plants, animals and man. A basic course for students in all fields of study. Su, F, W, Sp.
- 301: Basic Genetics Laboratory.** 3-0-1. Fundamental experiments designed to show application of laws of inheritance in selected organisms. Su, F, W, Sp.
- 333: European Influences on Modern Science and Medicine.** 0-3-3. Preq., sophomore standing or consent of instructor. European philosophers and scientists and their contributions to modern science with emphasis on Greeks and Romans. Su.
- 420: Statistical Methods.** 0-3-3. Preq., consent of the instructor. Methods of designing experiments and analyzing biological data. Su, F, W, Sp.
- 425: Special Problems.** 1-3 hour(s) credit. (6). Consent of instructor. Credit depends on the nature of the problem and work accomplished. Su, F, W, Sp.
- 456: Technology and the Bioenvironment.** 0-3-3. Principles of waste management, pollution control and environmental conservation. Topics include sources, effects, extent and control of air, water, soil and solid waste pollution. Su, F, W, Sp.
- 509: Life Sciences Seminar.** 0-1-1. (2) Survey of literature on current topics on state-of-the-art in either Bacteriology, Botany, Microbiology, or Zoology, where appropriate.
- 530: Life Sciences Special Problems.** 1-6 hours credit as limited by the Department. Permission of the instructor and the Department head. Individual advanced study of Special Problems in

Botany, Bacteriology, Microbiology, or Zoology, where appropriate.

- 551: Research and Thesis.** Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six hours.

MANAGEMENT

- 105: Introduction to Business.** 0-3-3. The university organization, curricula, learning process, educational practices; careers in business; society and administration of the business firm. (Open only to freshmen and sophomores. Honors class in fall quarter for freshmen students having ACT composite of 25 or higher.) Su, F, W, Sp.
- 201: Supervisory Techniques.** 0-3-3. Basic supervision of small employee groups including employee hiring and dismissal, planning and organizing work assignments, evaluating performance, necessary records, and legal aspects. (Associate degree credit only in CAB) F, W, Sp.
- 311: Organizational Behavior, Planning and Control.** 0-3-3. Preq., Junior standing. Nature and development of management theory, individual and group behavior, leadership, communications and organizational design, organizational planning and control. Su, F, W, Sp.
- 340: Small Business Management and Entrepreneurship.** 0-3-3. Organizing and operating the small business, with special attention to personal qualifications, capital requirements, location, sources of assistance. F, Sp.
- 444: Business Simulation.** 0-1-1. Preq., senior standing College of Administration and Business. Sequential decisionmaking structured around a model of a business operation in which the student assumes the role of managing a simulated firm.
- 446: Transportation.** 0-3-3. (Same as Economics 446). Development of domestic transportation systems; rate theory and rate-making practices; principles and practices of transport regulation by government agencies.
- 447: Personnel Law.** 0-3-3. A survey of landmark cases involving the labor movement, federal and state wage and hour laws, industrial relations and current issues in personnel law. Sp.
- 460: Purchasing and Materials Controls.** 0-3-3. Preq., Marketing 300. Principles of procurement and analysis of purchasing problems, with emphasis on quality and quantity control, pricing policy inspection, and standards of performance. W.
- 465: Industrial Traffic Management.** 0-3-3. Preq., senior standing. Analysis of functions comprising physical distribution; interaction of system components with emphasis on carrier types, rates, regulation and services.
- 470: Personnel Management.** 0-3-3. A study of the functions and procedures in personnel management with emphasis on the procurement, development, maintenance and utilization of the work force. Su, F, Sp.
- 472: Compensation Systems.** 0-3-3. Design of total compensation system with emphasis on compensation policies, programs, and practices including job analysis, position descriptions, job evaluation and job design. W.
- 475: Industrial Management.** 0-3-3. Preq., Quantitative Analysis 333. Management principles as applied to industrial production introducing such topics as production costs, quality control, time study, work simplification, scheduling, plant layout, and labor-management relations. W.
- 476: Systems and Operations Management.** 0-3-3. Preq., Quantitative Analysis 430. Advanced studies and case problems in the design, management and control of industrial operations. Topics include OR techniques, inventory and queuing models, forecasting, scheduling, and optimization.
- 480: Administrative Office Management.** 0-3-3. Preq., (See Office Administration 480). Su, F, Sp.
- 485: International Business Management.** 0-3-3. Readings and cases in international business: governmental activities, regionalism, market opportunities, structure of international companies, company intelligence, human relations, operating policies, procedures and problems.

- 495: Administrative Policy.** 0-3-3. Preq., all other Common Body of Knowledge courses and senior standing in the College of Administration and Business. Administrative policy determination through integration and application of knowledge gained in previous courses; emphasizes interrelationships of major functions of business under conditions of uncertainty; utilizes case approach. Su,F,W,Sp.
- 520: Directed Research and Readings.** 0-3-3. Research methodology; problems requiring independent organization of research, implementation, outline of solution, and preparation of reports. Emphasis placed on problem-solving for policy-making decisions.
- 521: Administrative Policy.** 0-3-3. A synthesis of materials learned in accounting, management, marketing, economics, and finance. Specific problems and actual cases as basis for executive decision-making.
- 537: Human Resources Management.** 0-3-3. Preq., Management 311 or equivalent. An advanced course in human resource management with emphasis on the practical application of theory to organizational manpower problems and issues. W.
- 539: Organization Theory.** 0-3-3. A macro approach to the study of complex organization emphasizing current research findings. W.
- 544: Advanced Productions and Operations Management.** 0-3-3. Preq., Quantitative Analysis 333 or equivalent. An in-depth analysis of production/operations concepts, methods, and techniques from a systems perspective. F.
- 545: Evolution of Management Thought.** 0-3-3. Seminar with emphasis on important contributions to modern management thought as evidenced in the writings of major contributors. F, even.
- 546: Current Issues in Management.** 0-3-3. Seminar in the problems of top management as they relate to the firm's environment. Su.
- 547: Seminar in Industrial Relations.** 0-3-3. An in-depth study of current issues in the area of labor-management relations. Sp.
- 571: Organizational Behavior.** 0-3-3. Preq., Satisfactory background in behavioral science area. A seminar with emphasis on theories and concepts of the behavioral sciences relevant to the internal operations of the organization.
- 573: Seminar in Behavioral Research Methodology.** 0-3-3. Analysis and intensive study of research and research methodology utilized in the behavioral sciences. The method of science as applied to management is emphasized.
- 581: Doctoral Seminar in Research.** 0-3-3. Research on individual topics. Should be taken near the completion of coursework. Su.

MARKETING

- 235: Fundamentals of Retail Store Operation.** 0-3-3. An introduction to operation of retail stores; retail salesmanship, purchasing control, and supervision. (Associate degree credit only in CAB). F,Sp.
- 300: Marketing Principles and Policies.** 0-3-3. Preq., Economics 201 or 215 and junior standing. Marketing functions; institutions; policies and strategies with their business, economic, and social implications. Su,F,W,Sp.
- 307: Salesmanship.** 0-3-3. Preq., junior standing. A study of the selling process with emphasis on the economic aspects of salesmanship and the role of the salesman in buyer-seller relationships. W,Sp.
- 320: Consumer Behavior.** 0-3-3. Preq., junior standing. A study of the consumer and the relation to the marketing process. Su,F,W,Sp.
- 420: Business Advertising.** 0-3-3. Preq., Marketing 300. A study of the analysis of principles of successful advertising enabling the student to appraise their effectiveness as marketing tools and their social and economic significance.
- 425: Sales Management.** 0-3-3. Preq., Marketing 307 or consent of instructor. Relation of sales department to other departments; types of sales organizations, management of sales force; market analysis; price policies, sales budgets; distribution costs. Sp.
- 435: Retailing Management.** 0-3-3. Preq., Marketing 300 and senior standing. Merchandise distribution by retail organization; emphasis on retailing in the distributive system and problems of management and control. W.
- 473: Marketing Administration.** 0-3-3. Preq., Marketing 320, 420, or 435, or consent. An in-depth analysis and use of marketing principles to construct marketing plans and decisions utilizing current studies and readings. F,Sp, Su.
- 482: Marketing Research.** 0-3-3. Preq., Quantitative Analysis 333. A consideration of marketing research as a tool management; application of research techniques to various marketing problems. W.
- 485: International Marketing.** 0-3-3. Preq., Marketing 300. International marketing opportunities and principles; marketing tools as a means of adapting the individual domestic business firm and its marketing methods to the international environment.
- 530: Marketing Management.** 0-3-3. A course to assist the marketing manager in analyzing management problems involving pricing, advertising and other promotion, sales management, product decision, marketing research.
- 531: Marketing Theory.** 0-3-3. Analysis of the evolution of marketing theory.
- 532: Seminar in Price Policies.** 0-3-3. Problems and practices involved in formulating and administering price policies.
- 533: Advanced Marketing Research.** 0-3-3. An in-depth study of research philosophy, theory, objectives, techniques, and problems as applied to marketing.
- 534: Marketing Dynamics.** 0-3-3. A course designed to examine the marketing organism and its adjustments to the legal, political, economic, social, and cultural environment.
- 535: Seminar in Marketing.** 0-3-3. An examination of concepts and research findings related to selected topics in marketing. Presentation and critical evaluation of reports from related disciplines.

MATHEMATICS

- 099: Developmental Math.** 0-4-4. Basic mathematical concepts, including arithmetic operations, algebra fundamentals, and introductory equation solving.
- 105: Basic Mathematics.** 0-3-3. Preq., Consent of instructor. Not open to students who have credit for a mathematics course numerically above 105 at Louisiana Tech. A review of basic concepts of arithmetic and algebra. Designed for students having inadequate mathematical backgrounds. F,W,Sp.
- 107: General Mathematics.** 0-2-2. Dependent on Math Placement Score. Sets and natural numbers, the arithmetic and algebra of integers, rational numbers, first degree equations and inequalities, equations with two variables. Su,F,W,Sp.
- 108: General Mathematics.** 0-2-2. Preq., Mathematics 107. Further extensions of the number system; polynomials; relations, function, and graphs; ratio, proportion, and variation; basic trigonometry. Su,F,W,Sp.
- 109: General Mathematics.** 0-2-2. Preq., Mathematics 108. Logarithms; compound interest and annuities; permutations, combinations, and probability; binomial theorem; some topics in statistics. Su,F,W,Sp.
- 110: Intermediate Algebra.** 0-3-3. Preq., Dependent upon Math Placement Score. The algebra of integers, first and second degree equations, algebraic fractions, factoring, exponents and radicals. (Credit is not allowed for both Math 110 and any part or all of the Math 107-108 sequence.) Su,F,W,Sp.
- 111: College Algebra.** 0-3-3. Preq., Dependent on Math Placement Score. Sets, inequalities, functions, systems of equations, determinants, permutations and combinations, quadratic equations. Su,F,W,Sp.
- 112: Trigonometry.** 0-3-3. Preq. or Coreq., Math 111. Solution of right triangles, reduction formulas, functions of multiple angles, trigonometric equations, inverse functions, and complex numbers. Su,F,W,Sp.
- 113: Plane and Solid Geometry.** 0-3-3. An integrated course in plane and solid geometry for a student who has not taken plane

geometry in high school, or for a student who needs demonstrative solid geometry. F,W.

- 114: Mathematics for the Consumer.** 0-3-3. Dependent on Math Placement Score. Decimals, percentages, discounts, markups, overhead, depreciation, profit, interest, installment buying, charts, graphs, averages, interpretation of computer printouts. F,Sp.
- 115: Mathematics of the Metric System.** 0-1-1. A study of the metric system. Units of measure, changing units, estimation in metric units, conversion from English to metric and metric to English units, and applications. Su,W,.
- 125: Finite Mathematics.** 0-3-3. Preq., Math 110 or consent of the instructor. Topics include inequalities, functions, application of linear equations, matrix algebra, probability, exponential and logarithmic functions.
- 220: Applied Calculus.** 0-3-3. Preq., Mathematics 111 and Mathematics 112. For students in the Architecture and Construction Technology curriculums. Functions and graphs, the derivative, applications of derivatives, indefinite integrals, application of definite integrals. Su,F,W,Sp.
- 222: Calculus for Business Administration and Economics.** 0-3-3. Preq., Mathematics 111. Functions and graphs, the derivative, the indefinite integral and the definite integral; applications as applied to business and economics. F,Sp.
- 228: Introductory Probability Theory.** 0-3-3. Preq., Mathematics 111 or consent of instructor. Probability from an elementary set theory standpoint in discrete probability spaces; and introductory statistical terminology and techniques. Su,F,Sp.
- 230: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 111 and 112; also dependent on math placement score. Introduction to analytic geometry, differentiation of algebraic functions, applications of the derivative. Su,F,W,Sp.
- 231: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 230. Applications of integration, curve sketching, trigonometric functions, logarithmic and exponential functions. Su,F,W,Sp.
- 232: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 231. Methods of integration, vectors in the plane, indeterminate forms and improper integrals, polar coordinates. Su,F,W,Sp.
- 303: Mathematics for Elementary Teachers.** 0-3-3. Preq., Mathematics 107 or 111. Development of the structure of the real number system, from the concept of sets through the systems of natural numbers and algorithms. Su,F,W,Sp.
- 304: Mathematics for Elementary Teachers.** 0-3-3. Preq., Mathematics 303. A continuation of the study of real number systems from integers to rational numbers to real numbers to abstract number systems; topics from geometry. Su,F,W,Sp.
- 307: Contemporary Mathematics for Secondary School Teachers.** 0-3-3. Preq., Mathematics 109, 112, or 113. Sets, relations, functions, equations, inequalities, proofs, structure of algebra, evaluation of experimental programs in mathematics. F.
- 308: Introduction to Linear Algebra.** 0-3-3. Preq., Mathematics 230. Matrices, systems of linear equations, vectors, vector spaces, linear transformations, eigenvalues and eigenvectors. Su,F,W,Sp.
- 313: Introductory Numerical Analysis.** 0-3-3. Preq., Mathematics 231 and Computer Science 102. Introduction to numerical techniques in finding roots of equations, solving systems of equations, approximating functions, derivatives and integrals. F,Sp.
- 318: Introduction to Abstract Algebra.** 0-3-3. Preq., Mathematics 231. Fundamental set concepts, groups, rings integral domains, fields, polynomials. Su,F,Sp.
- 330: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 232. Infinite series, vectors and solid analytic geometry, applications to physical problems, partial differentiation, multiple integral. Su,F,W,Sp.
- 340: Introduction to Real Analysis.** 0-3-3. Preq., Mathematics 330. A rigorous introduction to the calculus of functions of one real variable.
- 350: Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 330 or consent of instructor. Equations of first order and first degree, singular solutions, applications to geometry and physics, linear equations of higher order.
- 375: Mathematical Methods in Engineering.** 0-3-3. Preq., Mathematics 350. Selected topics from Partial Differential Equations, Fourier Analysis, Numerical Methods and Statistics and Probability with applications to engineering problems. F,Sp.
- 401: College Geometry.** 0-3-3. Preq., Mathematics 230 or consent of instructor. Logical systems and basic laws of reasoning, axiomatic geometry, selected Euclidean geometry, harmonic elements and cross ratio, non-Euclidean and metric projective geometries. W,Sp.
- 405: Linear Algebra.** 0-3-3. Preq., Mathematics 308 or consent of instructor. Study of linear systems, matrices, and algebra of matrices, determinants, vector spaces and subspaces, linear transformations and representations by matrices.
- 407: Partial Differential Equations.** 0-3-3. Preq., Mathematics 350. Techniques for solving linear first order equations in several variables. Formation and solving of second order initial boundary-value problems using Fourier series, Fourier integral methods. F,Sp.
- 410: Advanced Engineering Mathematics.** 0-3-3. Preq., Mathematics 330. Power series, Taylor's formula, applications, complex series, Fourier series, functions of several variables.
- 411: Advanced Engineering Mathematics.** 0-3-3. Preq., Mathematics 330. Vectors, fundamental operations and applications, linear vector spaces and matrices, coordinates and function, transformation theorems, application.
- 412: Vector and Tensor Analysis.** 0-3-3. Preq., Mathematics 411 or consent of instructor. The algebra of vectors, differential vector calculus, differential geometry, integration, static and dynamic electricity, mechanics, hydrodynamics, and electricity, tensor analysis and Riemann geometry, further applications of tensor analysis.
- 413: Foundations and Fundamental Concepts.** 0-3-3. Preq., Mathematics 231 or consent of instructor. Mathematics before Euclid, Euclid's "elements," non-Euclidean geometry, Hilbert's "Grundlagen," algebraic structure, the modern mathematical method, sets, logic and philosophy.
- 414: Numerical Analysis.** 0-3-3. Preq., Math 308, Knowledge of FORTRAN, or consent of instructor. Roots of polynomial and other nonlinear equation. Solutions of systems of simultaneous equations. Numerical applications of matrix theory and linear algebra. Interpolating polynomials.
- 415: Numerical Analysis.** 0-3-3. Preq., Math 350, Math 414, or consent of instructor. Curve fitting techniques. Function approximation techniques. Numerical differentiation. Numerical integration. Numerical solution of differential equations and systems of differential equations and boundary value problems.
- 416: Abstract Algebra.** 0-3-3. Preq., Mathematics 318 or consent of instructor. Number theory, equivalences, and congruences, groups, ideals. F.
- 430: Projective Geometry.** 0-3-3. Preq., Mathematics 308, 330 or consent of instructor. Ideal elements, duality, harmonic sets, projectivity, projective theory of conics, theory of poles and polars.
- 440: Linear Programming.** 0-3-3. Preq., Mathematics 230 and 308 or consent of instructor. Characteristics of linear programming problems, properties of linear programming solutions, the simplex method with variations, optimality analysis, the dual problem, the transportation problem.
- 441: Non-linear Programming.** 0-3-3. Preq., Mathematics 440. Advanced topics in linear programming, quadratic programming, dynamic programming.
- 445: Theory of Functions of Complex Variables.** 0-3-3. Preq., Mathematics 330. Complex numbers, analytic functions, elementary functions, mapping elementary functions, integrals, power series, residues, poles, conformal mappings, applications of conformal mappings.
- 450: Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 340 and 350 or consent. First-order equations, second-order

linear equations, general linear equations and systems, existence and uniqueness theorems, plane autonomous systems.

- 460: Number Theory.** 0-3-3. Preq., Mathematics 318. Divisibility properties of integers, prime numbers, congruences, number theoretic functions.
- 470: Introduction to Topology.** 0-3-3. Preq., consent of instructor. Introduction of concepts, metric spaces, countability axioms, separation axioms, connectedness, compactness, product spaces, continuous mappings and homeomorphisms, homotopy, quotient spaces.
- 480: Introductory Analysis.** 0-3-3. Preq., Mathematics 340. A study of functions in metric spaces—limits, continuity, integration, uniform convergence, approximations.
- 490: Topics in Mathematics.** 0-3-3. Various topics in the field of Mathematics. May be repeated for credit.
- 502: Special Functions in Applied Mathematics.** 0-3-3. Preq., Mathematics 330. Orthogonal functions, solutions of differential equations of Legendre, Gauss, Hermite, Tchebysheff, Laguerre, and Bessel, properties of these solutions, coordinate system, and boundary value problems.
- 507: Partial Differential Equations.** 0-3-3. Preq., Mathematics 407. Continuation of Mathematics 407. Existence, uniqueness, and representation of solutions, problems in higher dimensions, Green's formulas, multiple Fourier series, Fourier transforms, boundary value problems in infinite domains.
- 510: Functional Analysis.** 0-3-3. Preq., Mathematics 405, 470. Linear spaces, normed spaces, metric spaces, Banach spaces, Hilbert spaces.
- 511: Functional Analysis.** 0-3-3. Preq., Mathematics 510. Linear topological spaces, metric spaces, Banach spaces, Hilbert spaces.
- 515: Numerical Analysis.** 0-3-3. Preq., Consent of instructor. Numerical analysis of problems in linear algebra, norms for vectors and matrices, convergence properties of sequence and series of vectors and matrices, convergence of iterative techniques for linear systems. Numerical differentiation and integration. Numerical solutions of differential equations using infinite series of linear operators.
- 520: Theory of Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 450. Existence and uniqueness theorems, dependence of solutions on a parameter, linear and nonlinear differential equations, differential inequalities, oscillation and comparison theorems, stability of solutions, perturbation theory.
- 530: Algebraic Topology.** 0-3-3. Preq., Mathematics 470 and 416. Categories and functions, Eilenberg-Steenrod axioms, construction of the homology and cohomology groups, homology of finite complexes, universal coefficient theorems, Eilenberg-Zilber theorem, the cohomology ring, the cross product operation, fundamental group, higher homotopy groups.
- 544: Modern Operational Mathematics.** 0-3-3. Preq., Mathematics 350. Theory and applications of transforms of Laplace and Fourier, inverse transforms by complex variable methods. Applications to analysis and linear operations.
- 545: Complex Analysis.** 0-3-3. Preq., Mathematics 445. Rigorous development of limits, continuity, analyticity, sequences, uniform convergence, power series, exponential and trigonometric functions, conformality, linear transformations, conformal mapping and elementary Riemann surfaces.
- 546: Complex Analysis.** 0-3-3. Preq., Mathematics 545. Continuation of Mathematics 545. Fundamental theorems in complex integration, local properties of analytic functions, calculus of residues, harmonic functions, entire functions, normal families, conformal mappings and Dirichlet's problem, elliptic and global analytic functions.
- 550: Algebraic Geometry.** 0-3-3. Preq., Mathematics 330 and 405 or consent. Homogeneous linear equations and linear dependence, projections and rigid motions, homogeneous cartesian coordinates, linear dependence of points and lines, point geometry and line geometry, harmonic division and cross ratio, one-and-two dimensional projective transformations.

562: Advanced Linear Algebra. 0-3-3. Preq., Mathematics 405. Eigenvalues, linear functionals, bilinear and quadratic forms, orthogonal and unitary transformations, normal matrices.

566: Advanced Abstract Algebra. 0-3-3. Preq., Mathematics 416. Concepts from set theory, groups, rings, integral domains, fields, extensions of rings and fields, modules, ideals.

578: Probability Theory. 0-3-3. Preq., Mathematics 480 or consent of instructor. Probability spaces and random variables, characteristic functions and distribution functions, probability laws and types of laws, limit distributions, independent and dependent sums of random variables.

580: Mathematical Analysis. 0-3-3. Preq., Mathematics 480. Real number system, measures with emphasis on Lebesgue measure, abstract integration with emphasis on the Lebesgue integral.

581: Mathematical Analysis. 0-3-3. Preq., Math 580. Metric Spaces, Topological Spaces and Banach Spaces.

584: Topics in Algebra. 0-3-3. May be repeated for 3 hours credit each time.

586: Topics in Analysis. 0-3-3. May be repeated for 3 hours credit each time.

587: Topics in Applied Mathematics. 0-3-3. May be repeated for 3 hours credit each time.

588: Topics in Topology. 0-3-3. May be repeated for 3 hours credit each time.

MECHANICAL ENGINEERING

100: Introduction to Mechanical Engineering. 3-0-1. An introduction to the mechanical engineering department, curriculum and profession.

200: Fundamentals of Energy. 0-3-3. Preq., Mathematics 108. Science Elective for non-engineering students. Study of energy: sources; scientific laws governing conversions; environmental effects; economic, social and political developments; and individual consumer's role.

201: Mechanisms. 3-1-2. Preq., Mathematics 230, Engr 151. Kinematic analysis of mechanisms. The use of analytical and graphical methods in determining velocities and accelerations in mechanism motions. Applications to machines. Gears and cams.

251: Manufacturing Processes. 3-1-2. A study of the processes of manufacture of machine parts. Lectures describe processes. Laboratory is operational practice and demonstration of machine tools, foundry, and welding.

307: Materials of Engineering. 3-2-3. Preq., Chemistry 102, 104 and Mechanical Engineering 251. A study of the basic principles which relate the properties of materials to their internal structures. The properties of engineering materials are evaluated.

309: Machine Design. 0-3-3. Preq., Engineering Mechanics 311, Mechanical Engineering 307, and credit for or registration in Engineering Mechanics 203. Further studies in strength of materials and properties of materials. Theories of failure. Fatigue.

315: Thermodynamics. 0-2-2. Preq., Mathematics 231 and Physics 201. No credit for Mechanical Engineering 315 unless Mechanical Engineering 316 is taken. Fundamental concepts and definitions, properties of a pure substance, work and heat, first and second laws of thermodynamics.

316: Thermodynamics. 0-2-2. Preq., Mechanical Engineering 315. Entropy, irreversibility and availability, vapor and air-standard power and refrigeration cycles.

317: Thermodynamics. 0-2-2. Preq., Mechanical Engineering 316. Ideal gas mixtures, thermodynamic relations, flow through nozzles and blade passages, chemical reactions, and chemical equilibrium.

326: Mechanical Equipment for Buildings. 0-3-3. Preq., Physics 210. Not available to mechanical engineering majors. Principles of water supply, plumbing, heating, and air conditioning and their application to practical design problems.

351: Instrumentation and Measurements. 3-0-1. Preq., Electrical Engineering 213 and Mechanical Engineering 315. Experimental methods, report writing, characteristics of instruments

with emphasis on pressure and temperature; the use of statistical methods in analyzing data.

- 353: Mechanical Engineering Problems.** 3-0-1. Preq., Mathematics 350 and credit or registration in Mechanical Engineering 315. Solution of mechanical engineering problems using digital computing techniques.
- 354: Mechanical Engineering Problems.** 3-0-1. Preq., 353 and Math 375. A continuation of Mechanical Engineering 353. Solution of mechanical engineering problems using numerical methods and digital computing techniques.
- 402: Machine Design.** 3-1-2. Preq., Mechanical Engineering 201 and 309. Application of mechanics, kinematics, stress analysis, fatigue and theories of failure in the design of machines. Study of lubrication.
- 403: Machine Design.** 0-2-2. Preq., Mechanical Engineering 309. A continuation of Mechanical Engineering 309. Further study of energy methods, plates and shells, vibrations and impact loading, conjugate beams, introduction to stress fields.
- 404: Mechanical Systems Design.** 3-1-2. Preq., Mechanical Engineering 402. The analysis and design of complete mechanical system.
- 405: Thermal Engineering.** 0-3-3. Preq., Mechanical Engineering 317, 351, 421. Analysis and design of thermal components and systems.
- 409: Thermal Design.** 0-2-2. Preq., Mechanical Engineering 405. Methodology of design; the design of complete thermal systems.
- 410: Thermal Systems Designs.** 3-1-2. Preq., Mechanical Engineering 405 and 422. The analysis and design of complete thermal systems.
- 414: Air Pollution and Its Control.** 0-3-3. Preq., Mechanical Engineering 316 or Chemical Engineering 321. Demonstrates ways in which studies from engineering science relate to an understanding of the technological aspects and solutions to a major societal problem.
- 418: Transport Phenomena.** 0-3-3. Preq., Engineering Mechanics 321 and Mechanical Engineering 421. A study of the principles and equations governing the transfer of heat, mass, and momentum with emphasis on similarities.
- 421: Heat Transfer.** 0-3-3. Preq., Mathematics 350, Mechanical Engineering 316, and credit or registration in Engineering Mechanics 321 and Mechanical Engineering 353. Fundamental laws of heat transfer by conduction, convection, and radiation; steady and unsteady states; application to heat transfer equipment. Digital computer solutions.
- 422: Fluid Mechanics.** 3-1-2. Preq., Engineering Mechanics 321 and Mathematics 350. Basic laws. Non-dimensional groups. Laminar and turbulent flow. Viscous effects. Compressible flow. External and internal flow. Flow measurement and control. Non-Newtonian flow.
- 423: Gas Dynamics.** 0-2-2. Preq., Mechanical Engineering 422. A study of the fundamental laws applied to compressible fluid flow. Isentropic flow, normal shocks, Fanno flow, Rayleigh flow and finally generalized compressible flow.
- 424: Seminar.** 0-1-1. Preq., senior standing. Conference type technical discussions, reading assigned papers, informal talks by students, instructors and professional engineers on subjects of current technical interest. Instruction in oral delivery.
- 429: Experimental Stress Analysis.** 3-2-3. Preq., Mechanical Engineering 309 or Civil Engineering 346 and Electrical Engineering 213. A thorough study of bonded resistance strain gages and photoelasticity and a survey study of other areas of experimental stress analysis.
- 430: System Dynamics.** 0-3-3. Preq., Engineering Mechanics 203 and Mechanical Engineering 354. Introductory analysis of dynamic systems with emphasis on mechanical vibrations, feedback controls, pneumatic systems, hydraulic systems, and thermal systems.
- 431: Feedback Control Systems.** 3-2-3. Preq., senior standing or consent of the instructor. The analysis, design, and synthesis of mechanical systems employing feedback control. Methods of determining system stability. Typical mechanical control elements and their transfer functions.
- 433: Mechanical Vibrations.** 0-3-3. Preq., Mathematics 350, Engineering Mechanics 203 and 301. Single and multiple degrees of freedom systems. Rayleigh's method, normal modes, dynamic balancing, vibration isolation and absorption in machines. Vibration of elastic bodies.
- 435: Internal Combustion Engines.** 0-3-3. Preq., Mechanical Engineering 316. The study of principles of operation of internal combustion engines. Theories of combustion and detonation. Injection and carburetion. Engine timing and lubrication theories.
- 437: Engineering Analysis.** 0-3-3. Preq., Mathematics 350 and senior standing. Development and application of analytical, graphical and approximate methods for solving engineering problems. Use of dimensional analysis, models, relaxation techniques, and development of alignment charts.
- 439: The Finite Element Method.** 0-3-3. Introduction of matrix algebra, basic equations of elasticity, energy theorems, matrix displacement method, stiffness properties of structural elements, structural synthesis, non-linear structural analysis.
- 441: Air Conditioning and Refrigeration.** 0-3-3. Preq., senior standing or consent of the instructor. A study of psychrometric processes, heating and cooling load calculations, and systems, and the thermodynamics of refrigeration cycles. Design of air conditioning and refrigeration systems.
- 442: Solar Energy Design.** 0-3-3. Preq., M.E. 316 or equivalent. Studies in defining, measuring, collecting, transmitting, converting, and utilizing solar energy. Design of solar energy systems.
- 445: Cryogenic Systems.** 0-3-3. Preq., Mechanical Engineering 316 or consent of instructor. A study of systems which produce, maintain, and utilize very low temperatures.
- 447: Engineering Acoustics.** 0-3-3. Preq., Physics 202, Mathematics 350. A study of acoustical radiation, transmission, and absorption; noise control; acoustic measurements.
- 450: Special Problems.** 1-4 hours credit. Preq., senior and consent of instructor. Topics selected will vary from term to term for the purpose of covering selected topics of current importance or special interest.
- 452: Senior Mechanical Laboratory.** 3-0-1. Preq., Mechanical Engineering 405. Groups perform experiments or investigate problems related to heat transfer, refrigeration and air conditioning, compressible fluid flow, and special problems involving other areas of study.
- 453: Senior Mechanical Laboratory.** 3-0-1. Req. Mechanical Engineering 405, 422, 452. Continuation of Mechanical Engineering 452.
- 500: Energy, Sources and Utilization.** 0-3-3. Energy sources uses and conservation; physical laws governing energy conversion and energy transfer; economic, political and environmental problems related to energy.
- 502: Advanced Machine Design.** 0-3-3. The study of various topics from advanced mechanics as are applicable in the design of machines.
- 503: Advanced Heat Transfer.** 0-3-3. Steady and unsteady state conduction in one, two and three dimensional systems. Free and forced convection in laminar and turbulent flow, radiation.
- 506: Theory of Elasticity.** 0-3-3. Analysis of stress and strain in three dimensions, generalized Hooke's law. Extension, torsion, and flexure of beams. Two-dimensional elastostatic problems.
- 508: Theory of Plates and Shells.** 0-3-3. Pure bending of plates. Laterally loaded circular and rectangular plates. Membrane theory of shells. Bending of cylindrical shells.
- 513: Principles of Heat Exchangers.** 0-3-3. A study of the thermal and mechanical design of heat exchangers, regenerators, and radiators.
- 515: Advanced Thermodynamics.** 0-3-3. The fundamental laws of thermodynamics, entropy concept, phase changes, and chemical equilibrium; from microscopic view. Kinetic theory gas model, velocity distributions, types of statistics, partition function and its use; from microscopic view.

- 517: Thermal Stresses.** 0-3-3. Thermal stress equations for one- and two-dimensional thermal stress fields; transient temperature and thermal stresses in simple systems; thermal fatigue, creep, and inelastic thermal stresses at elevated temperatures; thermal effects on deflection.
- 524-525-526: Graduate Seminar.** 0-1-1 each. Surveys, investigations, and discussions of current problems in mechanical engineering.
- 527: Boundary Layer Theory.** 0-3-3. Review of fundamentals of potential flow; Navier-Stokes equations and exact solutions; similarity concept; Prandtl boundary layer equations, thermal boundary layers, transition and turbulence.
- 529: Two-Phase Flow.** 0-3-3. A study of current theories of heat, mass and momentum transfer in internal two-phase, gas-liquid flow. Topics covered will include current practical information needed for design of two-phase flow equipment as well as the more advanced theoretical subjects.
- 530: Viscous Flow.** 0-3-3. Study of fundamental governing equations of viscous compressible flow. Classical solutions, incompressible and compressible flow. Digital computer applications. Laminar boundary layer, stability and turbulent flow.
- 533: Dynamics of Machinery.** 0-3-3. Advanced dynamics and its application to the design and control of machinery. Balancing of machinery, engine dynamics, and dynamics of automatic-control systems.
- 539: Advanced Computing Techniques in Mechanical Engineering.** 0-3-3. Techniques for the analysis and solution of problems in mechanical engineering utilizing advanced mathematical methods and digital computer programming techniques. Designed to enhance the problem-solving capabilities of the engineer both in an industrial job and in graduate research.
- 540: Advanced Finite Element Methods.** 0-3-3. Physical, variational, and generalized approach. Basic notation of elements and interpolation functions. Physical examples in elasticity, fluids, and heat conduction.
- 541: Optimal Mechanical Design.** 0-3-3. Computer-aided design. Mechanical engineering design problems, programming and optimization. Design of structures and dynamic mechanical systems.
- 550: Special Problems.** 1-4 semester hours. Advanced problems in mechanical engineering. The problems and projects will be treated by current methods used in professional practice.

MECHANICAL TECHNOLOGY

- 101: Introduction to Mechanical Technology.** 0-3-3. The Mechanical Technology Curriculum; a study of units, dimensions, the use of calculators, handbooks, technical tables, charts, graphs and manufacturers catalogs.
- 151: Pressure, Temperature, and Flow Measurement.** 3-1-2. A study of the principles and devices used in the measurement of pressure, temperature and flow.
- 201: Mechanisms and Motion.** 3-1-2. Preq., Mathematics 112 and Technical Drafting 101. Kinematic analysis of mechanisms. The use of analytical and graphical methods in determining velocities and accelerations in mechanism motions. Applications to machines. Gears and cams.
- 204: Technical Writing and Creativity.** 3-1-2. Preq., Mechanical Technology 201. Fundamentals of technical writing; technical reports; principles used in generating ideas; characteristics of creative people; practice in written expression of ideas.
- 206: Materials Science.** 3-2-3. A study of the properties of materials and the way these properties affect the behavior and use in engineering technology.
- 215: Thermal Science.** 0-3-3. Preq., Mathematics 112. Temperature; heat; work; first law of thermodynamics; basic principles of heat transfer.
- 221: Fluids Technology.** 0-2-2. Coreq., Mathematics 220. Fluid properties, basic laws of fluid behavior; principles of hydraulics and pneumatics.
- 226: Mechanical Equipment.** 3-1-2. Preq., Mechanical Technology 201 and 221. Coreq., Mechanical Technology 215. A study of the types and uses of mechanical equipment such as pumps, engines, compressors, boilers, heat exchangers, etc.
- 231: Instruments and Controls.** 3-2-3. Preq., Sixth quarter standing. A study of principles and devices used in controlling process plant equipment, fluid transmission system equipment, machine tools, etc.
- 250: Manufacturing Processes.** 3-0-1. Operational practice in the use of machine tools, foundry, welding and other processes for the manufacture of machine parts. Su.
- 251: Manufacturing Processes.** 3-1-2. A study of the processes of manufacture of machine parts. Lecture describes processes. Laboratory in operational practice and demonstration of machine tools, foundry and welding.
- 252: Fabricating Processes.** 3-1-2. Preq., Mechanical Technology 251. A continuation of Mechanical Technology 251 with special emphasis on forming and welding of mechanical components.
- 253: Tool Design.** 6-0-2. Preq., Mechanical Technology 251. Design of jigs and fixtures, cutting tools and handling equipment.

MEDICAL RECORD SCIENCE

- 100: Introduction to Medical Record Administration.** 0-1-1. A survey of health care professions; the medical record practitioner's career opportunities; policies, rules and information concerning the Medical Record Administration program, curriculum and hospital affiliation. F.
- 103: Introduction to Medical Terminology.** 0-3-3. A basic study of the language of medicine including word construction, definition and use of terms and an elementary study of the human anatomy, structures and functions with medical terminology application. W.Sp.
- 104: Introduction to Medical Record Science and the Health Profession.** 0-3-3. Introduction to medical record science and the other health occupations, history of medical records, career opportunities, professional ethics and function of a medical record department. F.
- 105: Medical Record Science Laboratory.** 3-0-1. Laboratory practice in routine medical record procedures. W.
- 106: Medical Record Science Directed Practice.** 3-0-1. Coreq. or Preq., MRS 105. Directed practice in the medical record departments of health care facilities, practice in analyzing medical records, performing routine medical record procedures. Sp.
- 203: Medical Terminology and Transcription.** 6-2-4. Preq., MRS 103 and Office Administration 201 or equivalent typing skill. Introduction to medical transcription with emphasis on medical terminology and transcription of medical record forms. Sp,Su.
- 210: Medical Record Science.** 0-3-3. Computation, presentation data collection methods; definition of terms used in statistical reporting; patient care and evaluation studies; coding and indexing. F.
- 211: Laboratory Practice in Coding.** 3-0-1. Coreq., MRS 210. Practical application and laboratory practice of statistical reporting, coding and indexing. F.
- 212: Medical Record Science Laboratory and Directed Practice.** 3-0-1. Preq. or Coreq., MRS 210. On-campus and off-campus directed practice in accumulating medical statistics, coding and indexing, and comparison of various medical information systems. F.
- 220: Governmental and Accreditation Requirements for Health Records.** 0-2-2. Requirements for health records in hospitals, skilled nursing facilities, intermediate care facilities, facilities for the mentally retarded, home health facilities, and psychiatric facilities. W.
- 221: Directed Experience.** 9-0-3. Coreq. or Preq., MRS 220. Clinical experience in a variety of health facilities. The students will observe and be able to apply basic medical record procedures. W.

- 225: Medical Record Science.** 0-3-3. Current trends in health information systems; legal aspects of medical records; and techniques of patient care evaluation. Sp.
- 230: Technical Affiliation.** 6-0-2. The student will perform various technical medical record functions in a hospital. Sp.
- 231: Directed Practice.** 12-0-2. Three week long full-time affiliation in a health care facility. Su.
- 280: Fundamentals of Medical Science.** 0-3-3. Preq., Zoology 225 and 226. A study of the nature and cause of disease. F.
- 301: Medical Record Science.** 0-3-3. An introduction to the field of medical record science, including history of medical records, professional ethics and function of a medical record department. F.
- 302: Medical Record Science Lab.** 3-0-1. Coreq., Medical Record Administration 301. Laboratory practice of the functions of a medical record department. F.
- 303: Medical Record Science.** 0-3-3. Preq., Medical Record Administration 301. An introduction to medical nomenclatures and classifications, including ICD-9-CM, SNDO and other classification systems, nomenclatures and reference tools, indexes and registers.
- 304: Medical Record Science Lab.** 3-0-1. Coreq., Medical Record Administration 303. Laboratory practice in coding, indexing and retrieval of medical data. W.
- 305: Legal Concepts of the Health Fields.** 0-2-2. A study of the principles of law as applied to the health field and medical record practice. W.
- 309: Fundamentals of Medical Science.** 0-2-2. Preq., MRS 280. The study of treatment and management of patients. W.
- 310: Fundamentals of Medical Science.** 0-2-2. Preq., MRS 280. A continuation of the study of treatment and management of patients. Sp.
- 314: Health Information Management.** 0-1-1. Preq., MRS 104 and MRS 210. Evaluating, planning, implementing, monitoring and analyzing the health information system data base and secondary indexes and registers created from the data base.
- 401: Medical Record Science.** 3-3-4. Computation, Statistics presentation and uses of health and vital statistics; data collection methods; definition of terms used in statistical reporting; laboratory practice in accumulating data, performing medical care evaluation studies. Sp.
- 403: Trends in Health Care Delivery.** 0-2-2 The changing health care field; legislation; governmental intervention in health care; patterns of delivery of health care. F.
- 404: Directed Experience.** 12-0-2. Preq., Consent of Director of Medical Record Administration Program. A supervised learning experience to develop insight, understanding and skill in the basic medical record procedures. Su,F,W,Sp.
- 405: Directed Experience.** 30-0-5. A supervised learning experience to develop insight, understanding and skill in specialized medical record procedures and management. Su,F,W,Sp.
- 406: Affiliation.** 30-0-5. A planned program to give the student a broad background in various procedures and types of equipment in a variety of health care institutions. Su,F,W,Sp.
- 407: Problems in Medical Record Administration.** 0-2-2. Preq., Medical Record Administration 406. A discussion of topics arising from students' study and experience in Medical Record Administration. Su,F,W,Sp.
- 408: Organization and Administration of Health Care Facilities.** 0-2-2. Organizational patterns in hospitals, long-term care facilities, and ambulatory care facilities; requirements of accrediting, licensing, and certifying agencies; medical record functions in long-term and ambulatory care settings. W.
- 412: Organization and Administration of the Medical Record Department.** 3-1-2. Preq., Management 311. Principles of management applied to the medical record department; laboratory practice in the use of management tools. W.
- 415: Medical Record Science Research.** 0-2-2. Preq., Statistics 200 and Medical Record Science 210. Research methodology, problems requiring independent organization of research, implementation, outline of solution and preparation of paper in Medical Record Science research.
- 420: Health Information Systems.** 0-2-2. Preq., Quantitative Analysis 220 and 435. Systems approach to management of health records. Development of computers in medicine.
- 422: Management Affiliation Objectives.** 0-2-2. Preq., completion of all required on campus courses in the Medical Record Administration curriculum and recommendation from committee on clinical affiliation. Development of objectives to be accomplished in clinical affiliation.
- 490: Advanced Medical Science Seminar.** 0-1-1. Professional seminar. Medical practitioners to lecture on recent trends in their field of expertise. May be repeated. Maximum 2 hours credit.F.

MEDICAL TECHNOLOGY

- 110: Orientation in Medical Technology.** 0-1-1. An introduction to the field of medical technology: professional ethics, a brief survey of laboratory procedures, and discussions concerning career opportunities. F.
- 242: Histological Sectioning.** 8 1/2-0-2. Preq., Zoology 115 or equivalent. Methods of preparing tissues for microscopic examination.
- 245: Clinical Analysis.** 4 1/4-2-3. Preq., Zoology 115 and Chemistry 102. A study of the qualitative and quantitative laboratory methods used to demonstrate the physiological state of the body.
- 341: Hematology.** 4 1/2-2-3. Preq., Zoology 115. Quantitative and qualitative methods for determining the condition of cellular blood and a study of its histology, morphology and physiology.
- 346: Medical X-Ray Technology.** 4 1/2-1-2. Preq., Zoology 111 and 112. Methods of obtaining routine radiographs, stressing proper positions and dark room techniques.
- 351: Medical Technology Problems.** 4 1/4-0-1. Preq., junior standing or consent of instructor. An introduction to the principles of research.
- 352: Medical Technology Problems.** 8 1/2-0-2. Preq., junior standing and permission of instructor. An introduction to the principles of research.
- 353: Medical Technology Problems.** 12 3/4-0-3. Preq., junior standing and permission of instructor. An introduction to the principles of research.
- 448: Serology.** 4 1/4-2-3. Preq., Zoology 115. A study of the body defenses against viral and bacterial diseases and serodiagnostic procedures based on the antigen-antibody reactions.
- 449: Biological and Clinical Applications of Radioisotopes.** 8 1/2-0-2. Preq., Chemistry 212 and Zoology 202. Intensive training in the use of specialized equipment for measuring ionizing radiations used in biological systems.
- 452: Medical Technology Seminar.** 0-1-1. Preq., Junior standing and permission of instructor. Medical technology ethics, trends, state requirements, new developments in the field, and student reports.
- 453: Medical Technology Internshipk.** 8 semester hours; 40 contact hours per week. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Medical Technology 454, 455 and 456 are completed. Su,F,W,Sp.
- 454: Medical Technology Internship.** 8 semester hours; 40 contact hourse per week. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Medical Technology 454, 455, and 456 are completed. Su,F,W,Sp.
- 455: Medical Technology Internship.** 8 semester hours; 40 contact hour per week. Includes lectures and laboratories in the branches of medical technologyk. Credit will not be given until Medical Technology 454, 455 and 456 are completed. Su,F,W,Sp.
- 456: Medical Technology Internship.** 6 semester hours; 40 contact hours per week. Includes lectures and laboratories in

branches of medical technology. Credit will be given on completion of this course for Medical Technology 453, 454, and 455. Su,F,W,Sp.

- 460: Clinical Hematology.** 0-2-2. Advanced concepts in the use and interpretation of hematological and coagulation procedures and data.
- 461: Clinical Hematology Laboratory.** 17-0-4. Practical instruction and laboratory practice in the performance of hematological and coagulation procedures.
- 462: Clinical Serology and Immunology.** 0-1-1. Advanced concepts in the use and interpretation of serological and immunological procedures and data.
- 463: Clinical Serology and Immunology Laboratory.** 8.5-0-2. Practical instruction and laboratory practice in the performance of serological and immunological procedures.
- 464: Clinical Bacteriology.** 0-3-3. Preq., consent of the instructor. Advanced concepts in the use and interpretation of medical bacteriological procedures and data.
- 465: Clinical Bacteriology Laboratory.** 12.75-0-3. Practical instruction and laboratory practice in bacterial isolation, identification, and antimicrobial sensitivity studies.
- 466: Clinical Immunohematology.** 0-1-1. An advanced study of the principles of immunohematology necessary to provide a patient with a safe blood transfusion.
- 467: Clinical Immunohematology Laboratory.** 12.75-0-3. Practical instruction and laboratory practice in immunohematological procedures utilized in a Hospital Blood Bank.
- 468: Clinical Chemistry.** 0-3-3. Preq., consent of instructor. Advanced concepts in the use and interpretation of clinical chemistry procedures and data.
- 469: Manual Clinical Chemistry Lab.** 15-0-3. Practical instruction and laboratory practice in the performance of manual clinical chemistry procedures.
- 470: Special Clinical Chemistry Laboratory.** 8.5-0-2. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of special clinical chemistry procedures.
- 471: Automated Clinical Chemistry Lab.** 8.5-0-2. Preq., consent of instructor. Practical instruction and lab practice in the performance of automated clinical chemistry procedures.
- 472: Clinical Chemistry Toxicology Laboratory.** 4.25-0-1. Preq., Consent of instructor. Practical instruction and laboratory practice in the performance of toxicological procedures.
- 473: Clinical Chemistry Radioimmunoassay Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of radioimmunoassay procedures.
- 474: Clinical Urinalysis.** 0-1-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of urinalysis procedures and data.
- 475: Clinical Urinalysis Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of urinalysis procedures.
- 476: Clinical Parasitology, Mycology and Mycobacteriology.** 0-1-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of procedures and data.
- 477: Clinical Parasitology, Mycology and Mycobacteriology Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of parasitological, mycological and mycobacteriological procedures.
- 478: Clinical Laboratory Administration.** 0-1-1. Preq., consent of instructor. Modern management concepts for the clinical laboratory.
- 479: Clinical Histopathology.** 4.25-1-2. Preq., consent of instructor. Advanced concepts in the use and interpretation of histotechnological procedures and findings.
- 480: Clinical Medical Technology Problems.** 4.25-0-1. Preq., consent of instructor. An introduction to emerging medical technologies.

481: Clinical Medical Technology Problems. 8.5-0-2. Preq., consent of instructor. An introduction to emerging medical technologies.

482: Clinical Medical Technology Problems. 12.75-0-3. Preq., consent of instructor. An introduction to emerging medical technologies.

MUSIC

- 102: Theory.** 3-2-2. Beginning study of fundamentals of music covering the areas of notation, ear-training, sight singing, and functional keyboard. F.
- 103: Theory.** 3-2-2. Preq., Music 102. Continuation of 102 with increasing emphasis on common-practice harmonic vocabulary. W.
- 104: Theory.** 3-2-2. Preq., Music 103. Continuation of 103. Sp.
- 107: Hymnology.** 0-3-3. The development of Christian hymnody; an appreciation of its value and an appraisal of suitability for worship. F.
- 108: Introduction to Music Literature.** 0-2-1. A broad survey of the history of music and its literature at the freshman level. F.
- 109: Intermediate Music Literature** 0-2-1. The study of the history of music and its literature at the freshman level with increasing emphasis on analytical listening skills. W.
- 110: Advanced Music Literature.** 0-2-1. The culmination of the development of analytical listening skills relative to the history of music and its literature at the freshman level. Sp.
- 201: Theory.** 3-2-2. Continuation of first year course with emphasis on the organization and interaction of melodic, harmonic and rhythmic concepts and musical forms. Aural training and functional keyboard is intensified in proportion to the depth of course content. F.
- 202: Theory.** 3-2-2. Preq., Music 201. Continuation of 201.
- 203: Theory.** 3-2-2. Preq., Music 202. Continuation of 202.
- 204: Conducting.** 1-1-1. Elementary methods, principles and practice of conducting. F.
- 207: Introduction to Church Music.** 0-3-3. History of development of sacred music with emphasis on liturgies. Sp.
- 215-216: Techniques of Musical Stage Production.** 3-1-2 each. Practical study of theories, practices and techniques of musical stage production. Su,Sp.
- 230: School Music.** 0-2-2. Fundamentals of music, study of rhythm and sight-singing for the elementary education major. Su,F,W,Sp.
- 234: School Music.** 0-2-2. Preq., Music 230. For juniors and seniors. Designed to give prospective classroom teacher materials and methods for teaching music in elementary grades. Review of fundamentals, study of rhythm and singing. Su,F,W,Sp.
- 303: Choral Arranging.** 0-2-2. A study of writing for the individual voices and the combinations of voices in choral ensembles. Su.
- 304: Composition.** 0-3-3. A survey of some of the techniques of 20th century composition with projects consisting of the writing of short compositions illustrating these techniques. Su,F,W,Sp.
- 305: Conducting.** 1-2-2. Preq., Music 201 and 204. Principles of interpretation, score reading with emphasis on choral conducting laboratory experience with the choral ensembles. W.
- 306: Conducting.** 1-2-2. Preq., Music 201 and 204. Emphasis on instrumental conducting experience. W.
- 307: American Church Music.** 0-3-3. A comprehensive study of hymnody through the colonial era to the 20th century.
- 310: Form and Analysis.** 0-3-3. A study of specific examples of the major forms of composition to show the relative importance of detail to the over-all comprehension of a composition. F.
- 314: Instrumental Arranging.** 0-2-2. A study of writing for the individual instruments of the band and orchestra, the combinations of instruments in the various sections, and the combination of all the sections. Sp.

- 317: History of Music.** 2-2-2. An indepth study of the specific periods of music and its literature, from antiquity through the baroque. F.
- 318: History of Music.** 2-2-2. Continuation of Music 317, from the rococo and into the romantic era. W.
- 319: History of Music.** 2-2-2. Continuation of Music 318, from the late romantic to the present time. Sp.
- 330: Music Appreciation.** 0-2-2. Designed to provide students not majoring in music with materials to develop a higher degree of understanding and enjoyment of music literature by many composers. Su,F,W,Sp.
- 401: Counterpoint.** 0-3-3. A study of contrapuntal practice of the 18th and 19th centuries with emphasis on the understanding of counterpoint within a harmonic context. W.
- 402: Problems in Theory for the Music Educator.** 0-2-2. A functional approach in music theory designed to assist the teacher in applying more theory to classroom teaching. Sp.
- 407: Organization and Administration of Church Music.** 0-3-3. The ministry of music with reference to materials, and organization. Field work with faculty supervision and evaluation is required. F.
- 408: Survey of Oratorio Solo Literature.** 1-1-1. Study, preparation, and performance of basic oratorio solos from the standpoint of vocalist and organist. F.
- 409: Survey of Organ Literature.** 3-0-1. A review of six centuries of organ literature for the organ major or musicologist. Su.
- 445: Instrument Maintenance and Repair.** 2-1-2. Practical methods of maintenance, adjustment, and repair of musical instruments. A course designed for student with experience in instrumental music.
- 450: Special Problems.** 1-4 semester hours. Preq., consent of advisor. Credit depends on the nature of the problem. May be repeated for credit.
- 455: Undergraduate Recital.** 0-1-0. Preq., Music Committee approval. As partial fulfillment for the Bachelor of Fine Arts Degree, all candidates must present a recital in their applied music major. Su,F,W,Sp.
- 464: Piano Methods, Materials, and Practice Teaching.** 0-2-2. Methods and materials used in teaching piano to beginners. Required by the State Department of Education for teachers wishing to be certified in piano. F.
- 465: Piano Methods, Materials, and Practice Teaching.** 0-2-2. Continuation of 464. Practice teaching of children is an integral part of this course. W.
- 466: Survey of Vocal Literature.** 0-3-3. A survey of vocal literature covering a wide diversity of composers, styles, and historical periods through discussion and analysis of representative works. This course includes assignments in listening, performance and reading. Sp.
- 467: Survey of Piano Literature.** 0-3-3. A survey of piano literature from the classic period to the present. Literature composed for earlier keyboard instruments will also be included. Su,Sp.
- 474: Seminar.** 0-1-1. Discussions and guided research based upon professional problems which confront the musician and the teacher. Su,F,W,Sp.
- 475: Seminar.** 0-1-1. Continuation of 474. Su,F,W,Sp.
- 476: Vocal Pedagogy, Materials and Practice Teaching.** 1-2-2 (4). Methods and materials used in teaching voice in private studio and/or in the school. F,W.
- 501: Canon and Fugue.** 0-3-3. Preq., Music 401. The Bach technique in double counterpoint. Exercises in canon and other fugal techniques leading in the analysis and writing of the complete fugue.
- 502: Composition.** 0-3-3. Preq., graduate standing and undergraduate composition credit.
- 517: Advanced History and Literature of Music.** 0-3-3. Intensive study designed to enlarge the teacher's understanding of music history and literature by means of lectures, discussions, research, and analysis.
- 518: Advanced History and Literature of Music.** 0-3-3. Continuation of 517.
- 519: Music in the Humanities.** 0-3-3. (Open to qualified graduate students). A survey of music literature and its contribution to human development.
- 520: Supervision in the School Music Program.** 0-3-3. Principles of supervision of public school music teachers.
- 524: Conducting.** 0-3-3. Technique of the baton, score reading, principles of interpretation, and problems which face the conductor. The work will be adapted to the individual's needs with respect to vocal or instrumental emphasis.
- 540: Bibliography and Research Sources in Music.** 0-2-2. Music source materials for research or reference.
- 550: Special Problems.** 1-4 semester hours. Preq., consent of advisor. Advanced course dealing with special problems in the different fields of elementary and secondary music. May be repeated for a maximum of six hours credit.
- 555: Graduate Recital.** 3 semester hours. As partial fulfillment for the master's degree, all candidates must present a recital program in their applied music major, of scope and technique acceptable to the faculty of the Music Department.
- 560: Selected Topics.** 1-4 S.H. Preq., consent of advisor. Advanced course dealing with selected topics in the different fields of elementary and secondary music. May be repeated for credit for a maximum of six hours.
- 564: Piano Literature.** 0-3-3. A survey of piano literature covering a wide diversity of composers, styles, and historical periods through discussion and analysis of representative works. This course includes assignments in listening, performance, and reading.
- 565: Organ Literature.** 0-3-3. A survey of organ literature. (See Music 564).
- 567: Instrumental Literature.** 0-3-3. A survey of instrumental literature. (See Music 564).

MUSIC (APPLIED)

Music performance courses are divided into nine principal divisions: Piano, Organ, Strings (Violin, Viola, Violoncello and Double Bass), Woodwinds, Percussion, Voice, Brass, Theory and Composition, Harpsichord.

The first digit of an applied music course number signifies the year 1, 2, 3, or 4.

The second digit denotes one of nine principal divisions as follows: 1-Piano; 2-Organ; 3-Voice; 4-Theory & Composition; 5-Strings; 6-Woodwinds; 7-Brass; 8-Percussion, and 9-Harpsichord.

The final digit indicates the number of hours credit. Each course number may be repeated for credit as necessary in order to complete requirements for freshman, sophomore, junior, and senior level.

A student may register for 1 or 2 hours credit per quarter for each applied music course. A maximum of 6 hours credit may be accumulated in each level. Then a student must register for the next higher level or discontinue the applied music study of that instrument for credit.

The student must have the approval of the applied music instructor before registering for these courses.

Piano

100 courses: Instruction in basic styles and techniques of piano playing. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

ORGAN

100 courses: Basic manual and pedal techniques from the leading organ methods. A wide acquaintance with organ literature and preparation for church service playing.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

VOICE

100 courses: Application of the principles of voice production and song interpretation through the study of vocalises and the standard vocal literature. Prescribed repertoire to include English, Italian, French, and German songs and arias in advanced studies.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

THEORY

100 courses: Instruction in the basic techniques of music theory. Selected studies in harmonia and melodic dictation-ear training-fundamental study in composition.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

STRINGS

(Violin, Viola, Violoncello, Double Bass)

100 courses: Instruction in the basic techniques of major instrument. Selected scale studies and etudes. Development of repertoire including the standard works of the literature.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

WOODWIND

100 courses: Instruction in the basic techniques of the major instrument. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the student. Assignments become more advanced as the students playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

BRASS

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

PERCUSSION

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual student and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

HARPSICHORD

100 courses: Instruction in basic styles and techniques of harpsichord playing. Performance of representative solo works and continuo parts suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

MUSIC (ENSEMBLE)

144: Opera Workshop, 1 credit hour optional.

144: Choir, 1 credit hour optional.

166: Orchestra, 1 credit hour optional.

177: Band, 1 credit hour optional.

Each course number may be repeated as many times as necessary. Music majors should familiarize themselves with maximum allowable credits and with requirements for Ensemble participation.

NURSING

109: Introduction to Nursing. 0-3-3. An introduction to the field of nursing with emphasis on its historical development and the cultural and socio-economic influences affecting its evolution. F,Sp.

110: Fundamental Skills Lab. 8-0-2. Preq., Nursing 109. Affords students opportunities to develop nursing skills by giving direct patient care. Emphasis on nursing activities which aid individuals to cope with their health problems. F,Sp.

112: Introduction to Adult Health Maintenance. 8-3-5. Preq., Nursing 109 and 110 and credit or registration in Zoology 225 and 226. Designed to acquaint students with fundamental nursing principles and techniques to administer safe nursing care in meeting basic human needs. Principles applied in clinical setting. W,Su.

114: Nursing Assessment and Intervention in Adult Health Maintenance. 8-3-5. Preq., Nursing 112 and credit or registration in Bacteriology 212. Study, identification and application of basic nursing knowledge and skills related to adult health needs. Emphasis on patient-centered care utilizing the nursing process. F,Sp.

116: Nursing Assessment and Intervention in Health Maintenance. 8-3-5. Preq., Nursing 114 and Psychology 102. Continuation of Nursing 114 with emphasis on organic and functional health needs of clients from birth to senescence including pathological neuro-psychiatric conditions. W,Su.

210: Nursing Assessment and Intervention in Maternal Health Maintenance. 8-3-5. Preq., Nursing 114. A study and application of principles and concepts of family-centered maternity care. Emphasis on nursing care of clients during antepartal, intrapartal, postpartal and newborn periods. F,Sp.

212: Nursing Assessment and Intervention in Child Health Maintenance. 8-3-5. Preq., Nursing 114 and Psychology 408. Study, identification and application of nursing principles involved in meeting needs of children through adolescence. Emphasis on growth and development, the family and prevention of illness. F,W.

214: Nursing Seminar. 0-1-1. Preq., Credit in all other nursing courses. Study of current nursing trends in light of evolving patterns and practices. Emphasis on professional opportunities and obligations and legal aspects of nursing practice. W,Sp.

216: Nursing Practicum. 24-4-7. Preq., Credit in all other nursing courses. Application of principles and techniques acquired in previous nursing courses to gain more skill in working as a team member and in directing auxiliary personnel. W,Sp.

OFFICE ADMINISTRATION

- 201: Basic Typewriting.** 2 1/2-1-2. Beginning course emphasizing keyboarding. Instruction in keyboarding skills and techniques. Formatting simple letters; manuscripts, and tabulated reports. Su,F,W,Sp.
- 202: Typewritten Communications.** 2 1/2-1-2. Preq., Office Administration 201 or equivalent; Office Administration and Business Education students must have at least a grade of C in 201 or equivalent. Emphasis on skill in layout and production of typewritten communications such as business forms, correspondence, and reports. (Meets intermediate typewriting requirements for teacher trainees.) Su,F,W,Sp.
- 203: Advanced Typewritten Communications.** 2 1/2-1-2. Preq., at least a grade of C in Office Administration 202 or equivalent. Complicated reports, correspondence, forms, legal documents. Introduction to various reproduction processes. Efficiency in handling multiple copies and other typing problems. Su,F,W,Sp.
- 205: Introduction to Business Communications.** 0-2-2. Preq., Office Administration 201 or equivalent. Basic business communications, using the typewriter as a tool for document preparation and formatting. Emphasis on business letters and memoranda requiring problem solving.
- 206: Gregg Theory.** 0-3-3. Preq., satisfactory score on basic communications test given in the course or take Office Administration 209. Theory of Gregg shorthand system. Principles stressed through reading and writing office communications in shorthand. Emphasis on development of vocabulary. Simple dictation. Su,F,W.
- 207: Intermediate Shorthand.** 0-3-3. Preq., at least a grade of C in Office Administration 206 or equivalent: satisfactory score on basic communications test given in Office Administration 206 or take Office Administration 209. Development of ability in reading, writing, and transcribing Gregg shorthand. Building recording speed from timed dictation. F,W,Sp.
- 209: Basic Communication Skill Development.** 0-3-3. Preq., English 101. Emphasis on reviewing and further developing student understanding of and use of written and oral communications as applied to business. (Associate degree credit only in CAB) Su,F,Sp.
- 210: Information Processing Concepts, Systems, and Procedures.** 0-3-3. Preq., Office Administration 202 and 209 or can be taken concurrently with Office Administration 209. Word processing, telecommunications, electronic mail, facsimile, data processing, electronic filing and retrieval, typesetting, printing, OCR input, copying, duplicating, machine transcription, and automated text-editing.
- 211: Information Processing Applications.** 0-3-3. Preq., Office Administration 210; at least a grade of C in Office Administration 210. Simulated office experience situations utilizing machine transcription and text-editing skills.
- 212: Information Processing Specialized Applications.** 0-3-3. Preq., Office Administration 211; at least a grade of C in Office Administration 210 and 211. Machine transcription and document creation in medicine, law, and other technical areas. 211. Concentration on development of ability to handle proficiently the vocabulary and problems peculiar to the student's area of specialization; i.e., medicine, law, and other technical areas.
- 250: Office Management.** 0-3-3. The role of office management in business institutions; organization of office operations; control of office costs; leadership and motivation of office personnel; business information systems. F,Sp.
- 303: Advanced Dictation and Transcription.** 0-3-3. Preq., at least a grade of C in Office Administration 203 and 208 or equivalents and demonstrated ability to take sustained dictation at a minimum of 90 words a minute. Shorthand vocabulary expanded. Continued development of speed and fidelity in recorded dictation. Transcription skill developed with emphasis on mailable copy. Electric typewriters. F,W,Sp.

- 304: Secretarial Recording and Reporting Problems.** 0-3-3. Preq., at least a grade C in Office Administration 303 and demonstrated ability to take dictation at a minimum of 100 words a minute. Transcription of complicated business correspondence and reports. Office-style dictation. Electric typewriters. Su,W,Sp.
- 305: Communications.** 0-3-3. Preq., Office Administration 202 and English 102. Practice in analyzing and composing all types of business letters and business reports. Su,F,W,Sp.
- 307: Office Systems and Procedures.** 0-3-3. Reproduction processes; communications systems; transmittal services: transcribing machines; records management and filing; special typewriters and office equipment. Su,F,W,Sp.
- 309: Professional Development and Problems in Secretarial Administration.** 0-3-3. Administrative career development and professional advancement; a survey of specialized secretarial and business fields; analysis of business problems pertinent to the administrative assistant.
- 310: Secretarial Practicum.** 4 1/2-1-2. Preq., at least a grade of C in Office Administration 303 and 307. Experience in transportation of office-style dictation, reproduction processes, demonstration of efficient work habits and office procedures, special typewriters and office equipment. Su,F,W,Sp.
- 400: C.P.S. Problems and Review.** 0-3-3. Preq., permission of advisor. A review course for those preparing to take the Certified Professional Secretary Examination. W.
- 480: Administrative Office Management.** 0-3-3. (Same as Management 480) Administrative organizational principles; techniques of organizational analysis; analysis and design of information systems; information technology; communications and records management; physical facilities; performance standards and control. Su,F,Sp.
- 482: Special Problems in Office Administration.** 0-(1-3)-(1-3). (Maximum of six semester hours credit.) Selected topics dealing with advanced problems in office administration and business education. The problems and projects will be timely and will be treated by current methods of professional practice. Su.

PETROLEUM ENGINEERING

- 100: Introduction to Petroleum Engineering.** 3-0-1. A survey of topics to introduce the student to the profession, to the department, and to the curriculum. F.
- 200: Story of Petroleum.** 0-3-3. Science Elective for non-Engineering students. Petroleum industry pictured from land leasing to product marketing. Importance of petroleum in economic, social, and political development reviewed. Su,F,W,Sp.
- 202: Exploration and Drilling.** 0-2-2. Principles and methods of oil field exploration and drilling with emphasis on drilling fluids, power plants and hoisting operations. F.
- 305: Laboratory.** 6-2-4. Preparation, testing, and alteration of drilling muds and oil well cement; analysis of well formation samples. F.
- 311: Petroleum Reservoir Fluids.** 3-2-3. Preq., Petroleum Engineering 202. Pressure-volume-temperature behavior of oil field hydrocarbon systems. Gas, gas-condensate and under saturated reservoirs. W.
- 404: Drilling and Production Design.** 0-3-3. Oil field development and operation, selection of drilling and pumping equipment, casing design and cementing problems. Sp.
- 405: Well-Logging Methods.** 3-2-3. Preq., credit or registration in Petroleum Engineering 410. Theory, operation and application of modern oil well logging methods, including radioactive and sonic logging. F.
- 406: Evaluation of Oil and Gas Properties.** 0-2-2. Preq., Petroleum Engineering 405. Factors, principles and processes used in the evaluation of oil and/or gas properties; preparation of valuation reports. Sp.
- 410: Petroleum Reservoir Engineering.** 0-3-3. Preq., Petroleum Engineering 311 or consent of instructor. Petroleum reservoir engineering applied to single and multi-drive reservoirs, including

a study of steady-state and unsteady state aquifer performance, fluid flow in reservoirs, and the displacement of oil and gas.

- 414: Natural Gas Engineering.** 0-2-2. Production, measurement, compression and transmission of natural gas; well potential and deliverability. Su,W.
- 415: Natural Gas Engineering Laboratory.** 3-0-1. Preq., credit or registration in Petroleum Engineering 414. Specific gravity and calorific content of gases; testing and calibration of orifices, positive displacement meters, safety valves and regulators. Su,W.
- 424: Seminar.** 0-1-1. Preq., Senior standing. Conference type technical discussion; reading assignments; professional presentations; and Conservation Department Hearings attendance.
- 425: Enhanced Oil Recovery.** 0-3-3. Preq., Petroleum Engineering 410 or consent of instructor. Study of recent developments in production practices, methods and equipment associated with thermal, miscible and immiscible techniques of enhanced oil recovery.
- 450: Computer Applications.** 3-2-3. Preq., consent of instructor. Advanced problems in petroleum engineering assigned according to ability and requirements of the student, with the intent that a computer solution will be forthcoming.
- 475: Applied Petroleum Engineering.** 0-3-3- (9). Preq., consent of instructor. Application of logging, reservoir, and economic engineering techniques to field cases. Su.
- 503: Advanced Reservoir Engineering.** 0-2-2. Preq., consent of instructor. Application of differential equations to the flow of fluids through porous media; well-spacing, secondary recovery, gas drive reservoirs, and water drive reservoirs.
- 504: Advanced Reservoir Engineering (continued).** 0-2-2. Preq., consent of instructor.
- 525: Advanced Natural Gas Engineering.** 0-2-2. Preq., consent of instructor. The engineering applications of science and mathematics to the processing of natural gas and natural gasoline; plant and/or fluid optimization.
- 550: Special Problems.** 1-4 semester hours. Preq., consent of instructor. Advanced problems in petroleum engineering will be assigned according to the ability and requirements of the student.

PETROLEUM TECHNOLOGY

- 101: Petroleum Exploration and Drilling Technology.** 0-3-3. Principles and methods of oil field exploration and drilling with emphasis on drilling fluids, power plants and hoisting operations from a field operating standpoint. F.
- 102: Oil Field Testing and Production Technology.** 3-2-3. Oil field development and operation, single and multi-phase fluid flow; production decline curves; electrical, radioactive, and sonic logging; well testing and deliverability. W.
- 103: Production Measurement and Transmission.** 3-2-3. Production, measurement, compression and transmission of natural gas; testing and calibration of orifices; positive displacement meters, safety valves and regulators. Sp.
- 104: Petroleum Field Practice.** 6-2-4. An application of petroleum technology in the laboratory and in actual field practice.

PHILOSOPHY

- 201: Introduction to Philosophy.** 0-3-3. Preq., junior standing or permission of the instructor. Philosophical vocabulary; types and problems of philosophy; major philosophical positions. Su,F,W,Sp.
- 251-252: Logic and Scientific Method.** 0-3-3 each. Traditional formal logic; inductive logic and scientific method; symbolic logic. F,Sp.
- 305: Ethics.** 0-3-3. Preq., Philosophy 201 or permission of the instructor. A study of the writings of the major moral philosophers, beginning with the Greeks and continuing to the present. Sp.

310: Philosophy of Religion. 0-3-3. Preq., Philosophy 201 or permission of the instructor. A comparative study of the philosophical aspects of the major world religions: their doctrines of God, the cosmos, and man. W.

350: History of Philosophy. 0-3-3. Preq., Philosophy 201 or permission of the instructor. A survey of philosophical speculation in the West, from its beginnings in the Mediterranean world to the present. W.

401: The American Mind. 0-3-3. (Same as English 401). Important currents of ideas that have found expression in American literature. F,Sp.

PHYSICS

- 101: Introductory Modern Physics.** 4 1/2-2-3. Quantum theory with associated laboratory experiments, relativity with Brehme diagrammatic method, introductory calculus with emphasis on physical interpretations, Fortran computer programming.
- 201: General Physics.** 0-3-3. Preq., Mathematics 230. Coreq., Physics 261. Thorough treatment of fundamental principles and detailed analysis of important physical situations. Su,F,W,Sp.
- 202: General Physics.** 0-3-3. Preq., Physics 201 and Mathematics 231, Coreq., Physics 262. A continuation of Physics 201. Su,F,W,Sp.
- 205: Descriptive Physics.** 0-3-3. For non-science majors interested only in the cultural aspects of the subject. Su,F,W,Sp.
- 206: Descriptive Physics.** 0-3-3. A continuation of Physics 205. Su,F,W,Sp.
- 207: Astronomy.** 0-3-3. The earth, moon, sun, planets, coordinate systems, motion in solar system, the seasons, the galactic system. May be accompanied by Physics 208. F,W,Sp.
- 208: Observational Astronomy.** 3-0-1. To accompany Physics 207. Optional. Identification of principal constellations, bright stars and planets. Telescopic observation of nebulae, double stars, moon and planets. F,W,Sp.
- 209: Elementary Physics.** 0-3-3. Preq., Mathematics 111-112. For pre-medical, pre-dental, pre-pharmacy, and science education students. A study of the fundamental principles of physics and their applications. Su,F,W,Sp.
- 210: Elementary Physics.** 0-3-3. Preq., Physics 209. A continuation of Physics 209. Su,F,W,Sp.
- 221: Introduction to Astrophysics.** 0-3-3. Introduction to astronomy, with emphasis on physical principles. Application of mechanics to orbits of planets and multiple stars. Atomic theory applied to stellar spectra. Nuclear reactions in stars.
- 261: General Physics Laboratory.** 4 1/2-0-1. Preq., Mathematics 111 and 112. Laboratory investigations of basic physical principles. Su,F,W,Sp.
- 262: General Physics Laboratory.** 4 1/2-0-1. Preq., Physics 261. A continuation of Physics 261. Su,F,W,Sp.
- 304: Physical Optics.** 0-3-3. Preq., Physics 202. A thorough exposition of the wave theory of light and an introduction to the quantum theory. F.
- 307: Thermodynamics.** 0-3-3. Preq., Physics 202. Classical thermodynamics and introductory classical and quantum statistical mechanics. F.
- 350: Introduction to Lasers.** 0-3-3. Preq., six hours of physics. Introduction to modern laser technology. A semi-quantitative approach presents all known types of lasers. Applications such as measurements, instrumentation, communications, biological, medical, and health hazards are concluding topics.
- 360: Physics For Teachers.** 0-4-4. The central ideas, principles and relationships of physical theory as pertains to the everyday environment.
- 361: Physics For Teachers.** 0-4-4. A continuation of Physics 360.
- 380: Physics of Solid State Materials.** 0-2-2. Study of the electrical, thermal, and magnetic properties of solid state materials.

- 404: Electricity and Magnetism.** 4 1/2-3-4. Preq., Physics 202. A study of the fundamental theories of electricity and magnetism. An application of basic principles is stressed.
- 405: Electricity and Magnetism.** 4 1/2-3-4. Preq., Physics 404. A continuation of Physics 404.
- 410: Modern Physics.** 4 1/2-3-4. Preq., Physics 202. An advanced course in general physics stressing the modern developments of the subject. W.
- 411: Modern Physics.** 4 1/2-3-4. Preq., Physics 410. A continuation of Physics 410. Sp.
- 422: Physical Mechanics.** 0-3-3. Preq., Physics 202. Statics, particle dynamics, dynamics of a rigid body, kinetic theory, elasticity, wave motion, and behavior of fluids. Fundamental importance of mechanical principles in all fields of physics emphasized. W.
- 423: Physical Mechanics.** 0-3-3. Preq., Physics 422. A continuation of Physics 422. Sp.
- 424: Quantum Mechanics.** 0-3-3. Preq., Physics 423 or equivalent, Physics 410, and Mathematics 350. An extension of mechanics into the microscopic world. The statistical nature of physical law is developed to augment the classical Newtonian picture of the macroscopic world. Will be offered Spring Quarter, Alternate years, beginning Spring 1981-82.
- 460: Physics of Photography.** 0-3-3. Preq., Physics 205. A descriptive and non-mathematical treatment of the physics and chemistry applicable to photography is presented for photography majors and other non-technical students interested in photography.
- 462: Modern Physics for Teachers.** 0-4-4. Preq., 8 hours of physics. A survey of modern physics as used by the high school teacher of physics.
- 463: Modern Physics for Teachers.** 0-4-4. Preq., 8 hours of Physics. Dissemination of information on physical science curricula for secondary schools.
- 465: Physics of Sound.** 0-3-3. Preq., Physics 205. The physical and psychophysical processes associated with sound are studied so that the basic mechanisms of hearing, speech and music can be better understood.
- 466: Physics of Hi-Fidelity.** 0-3-3. Preq., Physics 205. A descriptive study of the technical aspects of stereo and quadraphonic sound reproduction systems. Designed to provide non-science majors with an indepth understanding of how hi-fidelity sound is produced by studying and applying selected topics in Classical and Modern Physics.
- 470: Seminar.** 1-6 hours credit. Preq., Permission of instructor. An opportunity is given for students to present current topics and actively participate in discussions concerning new developments in physics.
- 480: Modern Astrophysics.** 0-3-3. Preq., Physics 411. Astrophysics is discussed in light of the tremendous amount of data accumulated from areas such as high energy experimental physics and elementary particle theory.
- 511: Electromagnetic Theory.** 0-3-3. An advanced treatment of the theory of electricity and magnetism.
- 512: Solid State Physics.** 4 1/2-3-4. An advanced treatment of the structure and the thermal, electrical and magnetic properties of solid materials.
- 521: Theoretical Mechanics.** 0-3-3. A presentation of advanced classical mechanics oriented towards modern theories of physics.
- 522: Quantum Mechanics.** 0-3-3. Preq., Mathematics 502. An outline of the principles of wave mechanics and quantum mechanics, followed by their application to problems in atomic and nuclear theory.
- 531: Theories of Physics.** 0-3-3. Selected topics. Contemporary theories dealing with recent trends in physics.
- 532: Theories of Physics.** 0-3-3. A continuation of Physics 531.

POLITICAL SCIENCE

- 201: National Government in the United States.** 0-3-3. A study of the development of the national government with emphasis on problems connected with the federal system and separation of powers. Su,F,W,Sp.
- All of the 300 and 400 numbered courses listed below carry the prerequisite of Political Science 201.**
- 302: Comparative Foreign Governments.** 0-3-3. Preq., Political Science 201 or consent of instructor. A study of the political systems and governments of the major European nation-states of the twentieth century. F.
- 303: State Government and Administration in the United States.** 0-3-3. A study of the role of the state in the American Union including nation-state and interstate relations. Sp.
- 304: The Government of Louisiana.** 0-3-3. A study of the functions and structure of the state government of Louisiana including constitutional development. F.
- 310: Governmental Regulation of Business.** 0-3-3. A study of public policy toward business including constitutional and administrative problems. W.
- 312: Public Administration.** 0-3-3. A study of the legal responsibility, organizational structure, personnel policies, and fiscal management of different levels of government in the United States. F.
- 314: American Municipal Government and Administration.** 0-3-3. A study of the authority, legal limitations and functions of present-day American municipalities; specific current legislative, judicial and administrative problems will be analyzed. W.
- 318: American Political Parties.** 0-3-3. A study of political parties as an essential factor in democratic government. Sp.
- 320: Legislation in the United States: Federal and State.** 0-3-3. A study of the legislative process and of the influences that determine the nature of the legislative product. Sp.
- 325: History of European Political Theory.** 0-3-3. Preq., one previous course in political science or philosophy and junior class standing, or consent of instructor. A study of Western political philosophy from its beginnings to the nineteenth century. F.
- 326: American Political Theory.** 0-3-3. Preq., one previous course in political science and junior class standing, or consent of instructor. A study of American political thinking with emphasis on the issues of democracy and the distribution of power in the United States. W.
- 327: Modern Political Theory and Ideologies.** 0-3-3. A study of nineteenth and twentieth century political theory with emphasis on the principal modern ideologies (Anarchism, Communism, Socialism, Fascism, Democracy). Sp.
- 330: The American Presidency.** 0-3-3. A study of the American Presidency including its origins, roles, functions, and problems. F.
- 345: Scope and Methods in Social Sciences.** 0-3-3. An introduction to basic statistics, research design, and the application of the qualitative and quantitative methods to the social sciences. F.
- 350: International Relations.** 0-3-3. Preq., one previous course in political science or consent of instructor. An introductory study of political contacts between modern nation-states, the origin of nationalism and imperialism, and the causes and effects of power politics. W.
- 402: Comparative Communist Systems.** 0-3-3. A comparative study of the governments and ideological diversities of countries of the communist bloc; particular attention will be paid to domestic affairs. W.
- 403: Communist Foreign Policies.** 0-3-3. A study of the world communist movement in terms of the foreign policies of individual countries. Sp.
- 412: Advanced Public Administration.** 0-3-3. The structures and processes of public administration; role of administration in

government, trends in American public administration, techniques of management in selected spheres. Sp.

- 420: Contemporary Problems in Government.** 0-3-3. Preq., One of the following courses: Political Science 201, or 303, or 304, and junior standing. Problems will be selected in conference with the instructor. Sp.
- 426: American Constitutional Law.** 0-3-3. Introduction to judicial institutions and processes as well as a case method study of the constitutional issues of judicial review, federalism, government economic regulation, and others. W.
- 427: American Constitutional Law.** 0-3-3. A continuation of the case method study of constitutional law, with emphasis on political and civil rights (speech, press, assembly, religion, race, criminal procedure, etc.). Sp.
- 450: International Organizations.** 0-3-3. For advanced undergraduates and graduate students. The theory of international organizations, the League of Nations, the United Nations, functions of specialized agencies, and the role of existing regional security agreements. Sp.

PROFESSIONAL AVIATION

- 103: Introduction to Aviation.** 0-4-4. An introduction to the airplane, weather, navigation, radio procedures and rules of the air. Prepares the student for the FAA Private Pilot Written Examination.
- 113: Introduction to Flight.** 3-0-1 (2). Preq., Professional Aviation 103 or concurrent enrollment. Provides the student with approximately 20 hours of dual and solo flight instruction. Designed to meet the flight experience requirements for the FAA Private Pilot flight check. Special fee.
- 200: Aircraft Powerplant Systems.** 0-3-3. Preq., Professional Aviation 103. Theory of piston engines. A study of the internal combustion process in the radial, opposed and V-typed engines including engine driven accessories.
- 201: Intermediate Aviation.** 0-2-2. Preq., Professional Aviation 103. An intermediate study of navigation, the computer, publications, and flight planning.
- 202: Intermediate Aviation.** 0-2-2. Preq., Professional Aviation 103. An intermediate study of aircraft and engines, aerodynamics, and weather.
- 203: Intermediate Aviation.** 0-2-2. Preq., Professional Aviation 201 and 202. An intermediate study of communications, rules of the air, attitude instruments, and physiological flight. Prepares student for FAA Commercial Pilot written examination.
- 205: Aircraft Electrical Systems.** 0-3-3. Preq., Professional Aviation 103. Fundamentals of aircraft electrical systems.
- 213: Intermediate Flight.** 6-0-2 (6). Preq., Professional Aviation 113. Provides the student with approximately 40 hours flight instruction. Designed to meet the flight experience requirements for the FAA Commercial Pilot Certificate. Special Fee.
- 223: Fixed Base Operations.** 0-3-3. Preq., Professional Aviation 103. Detailed study of the functions and responsibilities of the typical Fixed Base Operator.
- 300: Advanced Weather.** 0-2-2. Preq., Professional Aviation 203 or concurrent enrollment. An advanced study of aviation weather. Student learns to analyze and interpret U.S. Weather Bureau maps and charts.
- 301: Advanced Aviation.** 0-2-2. Preq., Professional Aviation 203. Study of altitude instrument flying procedures as well as departure, enroute, and arrival instrument flying procedures. Includes a study of FAA Regulations pertaining to instrument flight.
- 302: Advanced Aviation.** 0-2-2. Preq., Professional Aviation 300 and 301. A problem-solving course in advanced aviation, recalling and reviewing material covered in Professional Aviation 300 and 301. Prepares the student for the FAA Instrument Pilot's written examination.
- 303: Aerodynamics.** 0-3-3. Preq., Professional Aviation 203. A study of advanced aircraft design, aerodynamics and performance. W.
- 304: Advanced Aircraft Systems.** 0-3-3. Preq., Professional Aviation 200 and 205. Introduction to large transport systems and sub-systems.
- 305: Jet Propulsion Systems.** 0-3-3. Preq., Professional Aviation 103. Theory of jet propulsion and measurement of thrust. Includes turbojet, turbofan, and turboprop engines.
- 313: Advanced Flight.** 3-0-1 (2). Preq., Professional Aviation 213. Provides the student with approximately 20 hours of dual instrument flight instruction necessary to meet the experience requirements for the FAA Instrument Rating Flight Check. Special fee.
- 322: Aviation Law.** 0-2-2. Study of legislation covering aviation, air safety, and economic regulations governing the aviation industry. F,Sp.
- 400: Theory of Multiengine Flight.** 0-2-2. Preq., Professional Aviation 301. Provides the students with the theory of multiengine instrument flight. Focuses on emergency procedures and performance factors and weather related flight.
- 402: Applied Aviation Theory.** 3-2-3. Preq., Professional Aviation 302 and Psychology 102. Provides the student with fundamentals of flight instruction including the psychology of administering flight training.
- 403: Applied Aviation Theory.** 3-2-3. Preq., Professional Aviation 402 or concurrent enrollment. Provides the student with the fundamentals necessary to understand and analyze visual reference flight maneuvers. Prepares the student for the FAA Flight Instructor's Written Examination.
- 405: Applied Aviation Theory.** 3-2-3. Preq., Professional Aviation 403. Provides the student with fundamentals necessary to analyze and instruct instrument reference flight maneuvers and procedures. Prepares student for FAA Instrument Flight Instructor written examination.
- 407: Professional Aviation Theory.** 0-3-3. Preq., Permission of department head. Provides the student with the problem solutions and application of theory of flying transport aircraft. Prepares student for FAA Airline Transport Pilot written examination.
- 408: Flight Engineer Theory I.** 0-3-3. Preq., Professional Aviation 303, 304, 305. A study of FAA Regulations pertaining to air carrier operations and high altitude weather.
- 409: Flight Engineer Theory II.** 0-3-3. Preq., Professional Aviation 303, 304, 305. A study of heavy aircraft weight and balance, performance and the air carrier airplane in general.
- 412: Flight Engineer Theory III.** 0-3-3. Preq., Professional Aviation 408, 409. A study of heavy aircraft in automatic flight, the flight controls, instruments, and anti-icing systems. Serves as a review of the FAA written examination.
- 413: Applied Flight.** 6-0-2 (8) Preq., Professional Aviation 313 and 403 or concurrent enrollment. Provides the student with flight instruction necessary to meet the experience requirements necessary for FAA instructor of Airline Transport certificates and ratings. Special fee.
- 419: Directed Flight Instruction Experience.** 3-0-1 (4) Preq., Permission of Chief Flight Instructor and 2.0 GPA. Directed observation, participation and critique related to actual flight instruction.
- 490: The Government Role in Aviation.** 0-3-3. Preq., Senior standing. Historic, current and future governmental control. A study of congressional action, the CAB, the FAA, ICAO, and state and local aviation laws.
- 491: Flight Safety.** 0-3-3. Preq., Senior standing. A study of aircraft accident investigative procedures. The NTSB. Statistical analysis of accident by cause factors. Accident prevention.

PSYCHOLOGY

- 102: General Psychology.** 0-3-3. A survey of fundamental processes and concepts of human behavior.
- 202: Advanced General Psychology.** 0-3-3. Preq., Psychology 102. An intensive survey of literature and procedures in general psychology. W.

- 204: Educational Psychology.** 0-3-3. Education Majors only. A survey course designed to meet the needs of prospective teachers by bringing an application of psychological principles to the instructional setting. Su,F,W,Sp.
- 205: Child Psychology.** 0-3-3. Preq., for Education Majors or Home Economics Education majors. Admission to upper division. A study of the physical and mental growth of the child, the social, emotional, motor development, interests, and imaginative activities. Su,F,W,Sp.
- 206: Adolescent Psychology.** 0-3-3. Preq., for Education Majors or Home Economics Majors. Admission to upper division. A study of the physical and mental growth of youth during the period of adolescence and the transition from childhood to adulthood. Su,F,W,Sp.
- 300: Elementary Statistical Methods in the Social Sciences.** 0-3-3. A course designed to provide an orientation to statistical concepts used in the behavioral science field. Sp.
- 301: Fields of Psychology.** 0-3-3. A study of the history of major fields and trends in psychology. Sp.
- 302: Physiological Psychology.** 0-3-3. Preq., Zoology 225 310 (or concurrent enrollment), Psychology 202. An intensive study of the physiology of the nervous system, and its relation to behavior. F.
- 304: Social Psychology.** 0-3-3. Preq., Psychology 202. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions. W.
- 307: Elementary Experimental Psychology.** 3-2-3. Preq., Psychology 300 and 321. A beginning course in applying the scientific method to the problems of psychology. W.
- 310: Psychology of Personality.** 0-3-3. Preq., Psychology 202. A study of major theories of personality. Sp.
- 312: Psychology of Learning.** 0-3-3. Preq., Psychology 202. A survey of current theories of learning. Sp.
- 321: Psychological Testing.** 0-3-3. Preq., Psychology 300. An introduction to the principles and practices of psychological testing and evaluation. F.
- 400: Behavior Modification.** 0-3-3. Applied analysis to individual behaviors using concepts, and principles from experimental analysis of behavior. Sp.
- 404: Seminar In Psychology.** 0-3-3-(9). An intensive survey in selected current topics in the field of psychology.
- 407: Advanced Experimental Psychology.** 3-2-3. Preq., Psychology 307. Emphasis on investigating specific learning, motivation, and perception topics from methodological and historical viewpoints. W.
- 408: Human Growth and Development.** 0-3-3. A seminar for the study of human growth. W.
- 414: Dynamics of Adjustment.** 0-3-3. A comprehensive study of the problems of self-adjustment and self-management and the development of a well integrated personality. F,Sp.
- 418: Abnormal Psychology.** 0-3-3. Preq., Psychology 310 and 312. A study of the nature and development of abnormal behavior from a psychological viewpoint. F.
- 450: Introduction to Clinical Psychology.** 0-3-3. Preq., Consent of instructor. Introduction to clinical psychology as a science and profession. Lectures, discussions, demonstrations, and field observations are provided for an overview of clinical psychology. W.
- 459: Research Methods in Psychology.** 0-3-3. Preq., Psychology 300. An examination of the practical problems of designing, conducting, and interpreting research and of the structure and organization of research writing. F.
- 460: Field Research in Psychology.** 1 to 3 hours credit by arrangement. Preq., Psychology 459. Consent of the instructor. Supervised practice in methods of field research as a basic tool of psychology. Each student develops and executes a field research project. May be repeated for a maximum of 9 hours credit.
- 461: Data Analysis and Interpretation.** 0-3-3. Preq., Psy 300 or equivalent. A course designed to provide the skills necessary to use currently existing computer software to analyze data encountered in the social sciences.
- 465: Industrial Psychology.** 0-3-3. The application of psychological findings and concepts to the industrial environment. Sp.
- 469: Psychology of Sexual Behavior.** 0-3-3. Preq., Psy. 102, Zoology 200 and junior standing. Survey of both normal and abnormal sexual behavior and selected techniques employed in sex therapy and counseling.
- 475: Death, Dying and Grievance Process.** 0-3-3. Exploration of one's personal values toward death and the grieving process, funeral customs and practices, counseling the terminally ill, and various customs of death.
- 480: Psychology of Women.** 0-3-3. Overview of psychology of women including its history, theory, methodology, sex differences, sex roles, and implications for development, socialization, abnormal behavior, counseling and women's roles.
- 481: Psychology of Men.** 0-3-3. Preq., Psychology 102. An introduction to men's roles as they have been traditionally defined by society and as they are changing and developing in the world today. Sp.
- 490: Human Relations.** 0-3-3. The application of the behavioral science, methods and techniques, to the study of human relations. Develops a theoretical rationale for human relations training and provides laboratory experiences for developing interpersonal communications skills.
- 491: Human Relations.** 0-3-3. Preq., Psychology 490 and consent of instructor. Continued study of human relations plus supervised practice in performing group leadership and other facilitative roles.
- 492: Human Relations in Industry.** 0-3-3. To understand the basic principles of psychology and how these principles may be applied in industry to make for more effective Human Relations.
- 493: Behavioral Analysis in Industry.** 0-3-3. Application of behavioral analysis in industry. A study of the concepts, principles and skills essential for designing and implementing a behavior change plan in organizational settings.
- 494: Psychology of Decision Making.** 0-3-3. A study of the techniques and issues in the process of decision making.
- 496: Communication in Human Relations.** 0-3-3. A review of the concepts, principles and skills essential for effective communication in working with people.
- 498: Leadership Theories and Research.** 0-3-3. An indepth examination of various theories of leadership and leader behavior, and a critical examination and survey of research which has been conducted on leadership and leader behavior.
- 500: Individual Testing I.** 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Stanford-Binet Intelligence Scale with emphasis upon practice in administering, scoring, and interpreting test results.
- 508: Psycholinguistic Assessment.** 3-2-3. Preq., Psychology 500 and consent of the instructor. Application course in administration, scoring, and interpretation of the Illinois Test of Psycholinguistic Ability (ITPA) and the Utah Test of Language Development. Application of related achievement and visual-motor tests will also be studied.
- 511: Advanced Educational Psychology.** 0-3-3. An indepth study of the major theories of learning with an emphasis on reviewing contemporary research relating to human learning and the application of psychological principles to instructional technology.
- 520: Individual Testing II.** 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Wechsler Intelligence Scales with emphasis upon practice in administering scoring and interpreting test results.
- 521: School Psychology.** 0-3-3. An introduction to the functions of a school psychologist and a survey of professional issues and problems of concern to the school psychologist. The course considers such topics as qualifications for test administration, confidentiality, relations with other professions, problems of referral, and report writing.

- 524: Internship.** 0-3-3. Preq., Counseling 516 or Psychology 491. Supervised practice in conducting group counseling plus the opportunity for the counselor trainee to work with peers in evaluating his counseling techniques.
- 525: Case Study Practicum.** 9-1-4. Preq., permission of instructor. This course is arranged individually with students in the school psychology program and is designed primarily to integrate clinical procedures and techniques utilized in child study.

QUANTITATIVE ANALYSIS

- 220: Introduction to Business Information Systems.** 0-3-3. Preq., Sophomore standing. Concepts of information systems including use of electronic computers. Su,F,W,Sp.
- 233: Basic Business Statistics.** 0-3-3. Preq., Quantitative Analysis 220 or consent of instructor. Descriptive statistics, probability, sampling distributions, confidence intervals, inference, and regression and correlation. Emphasis is given to business application. Su,F,W,Sp.
- 333: Operations Management.** 0-3-3. Preq., Quantitative Analysis 233. Analysis and design of decision and production systems including applications of inventory control, forecasting, quality control, and linear programming. Su,F,W,Sp.
- 338: Business Applications with FORTRAN.** 0-3-3. Preq., Junior standing, preferably will precede other programming courses. Programming problems and systems for business, industry, and government using the FORmula TRANslator (FORTRAN) language.
- 339: Business Applications with COBOL and RPG.** 0-3-3. Preq., Junior standing. Programming problems and systems of increasing complexity for business, industry, and government using the COmmon Business Oriented Language (COBOL) language.
- 390: Quantitative Methods for Business and Economics.** 0-3-3. Preq., Junior standing. Presentation and review of pertinent quantitative topics to furnish the necessary background for the DBA quantitative methods field of study.
- 391: Information Systems.** 0-1-1. (Not open to students who have had Quantitative Analysis 220.) Background in information systems.
- 422: Business Applications with PL/I.** 0-3-3. Preq., knowledge of another programming language. Programming problems and systems for business, industry, and government using the Programming Language One (PL/I).
- 430: Management Science Methods.** 0-3-3. Preq., Quantitative Analysis 333. Linear programming including sensitivity analysis, the transportation problem, inventory analysis, and PERT.
- 432: Intermediate Business Statistics.** 0-3-3. Preq., Quantitative Analysis 333. Applied statistical methods utilizing the computerized Statistical Analysis System; multiple regression and correlation, chi square, analysis of variance, and non-parametric methods.
- 435: Information Systems: Analysis and Design.** 0-3-3. Preq., Quantitative Analysis 220 or equivalent and senior standing. Information systems for management decision making; systems construction and computer utilization, organizational concepts, systems analysis and data systems designed for accounting, marketing, production, personnel, and finance. F,Sp.
- 436: Advanced Data Management and Computer Analysis.** 0-3-3. Preq., a high level processing language. Advanced application in systems design and utilization of current programming packages. An individual project is required.
- 522: Advanced Business Statistics.** 0-3-3. Preq., Quantitative Analysis 333. Applied Statistical methods utilizing the computerized statistical analysis system (SAS): multiple regression and correlation, biased regression, analysis of variance, multiple comparisons, and non-parametric methods.
- 523: Multivariate Statistics: Business Applications.** 0-3-3. Preq., Quantitative Analysis 333. Regression extensions, canonical correlation, multivariate ANOVA, discriminant, business applications, principal components using SAS, SPSS, and BMD, factor and cluster analysis.
- 525: Management Science.** 0-3-3. Preq., Quantitative Analysis 333. Introduction to management science methods, mathematical

and dynamic programming; applications of operations research methods to management.

- 532: Econometric Methods.** 0-3-3. (Same as Economics 532). Preq., Quantitative Analysis 432 or other acceptable courses. The use of statistical techniques in economic research including estimation and interpretation of parameters of micro and macroeconomic models.
- 535: Advanced Computer Applications.** 0-3-3. Preq., knowledge of a programming language. Seminar in the management use and organization of future computer systems; computer languages, time sharing, real-time systems, multiprocessing and multiprogramming as applied to business and finance areas.
- 540: Advanced Management Science Methods.** 0-3-3. Preq., Quantitative Analysis 390 or equivalent. Quantitative analysis in management decision making including linear, integer and parametric programming; project planning and scheduling with CPM/PERT and MAP as applied to business management.
- 541: Advanced Management Science Methods.** 0-3-3. Preq., Programming Language. Systems analysis for management control: design, construction, testing, and operation of process models for simulation; simulation of queuing, inventory and large-scale industrial models.
- 550: Individual Research Problems.** 1-3 hours credit. Hours and credits to be arranged. Special problems in statistics, operations research, or management science solved with the aid of an electronic computer. Research report required which describes the problems, methods, results and conclusions.

READING

- 099: Developmental Reading.** 0-3-3. Builds reading fundamentals which are essential for comprehension of college-level textbooks. Develops skills in word recognition, comprehension, functional reading, vocational, and library and reference skills.
- 200: Reading Skills Improvement.** 0-3-3. This course is designed to assist any student who would like to improve basic reading skills. Emphasis on comprehension, concentration and speed. F,W,Sp.

SOCIAL SCIENCE

- 470: Senior Reading Program.** 0-3-3. A reading course in selected basic works optional for all majors in geography, history, political science, and sociology. Su,F,W,Sp.

SOCIAL WELFARE

- 200: Introduction to Social Welfare.** 0-3-3. The history of social work as a field: body of knowledge; method and process of operation of the specialized social work services in contemporary society. F,W.
- 301: Social Welfare as an Institution.** 0-3-3. Preq., Social Welfare 200 or consent of instructor. A study of social welfare services, philosophy and the ethics underlying present practices and systems. W.
- 350: Interventive Strategies in Social Welfare.** 0-3-3. A presentation of basic knowledge, social work skills and theories used in social work practice. Socio-cultural factors affecting the delivery of services. Sp.
- 431: Practicum in Supervised Field Experience.** 0-3-3. Preq., Consent of instructor. Designed to provide students with supervised experiences which apply problem solving to processes while understanding groups and individuals of special concern to social agencies. F,W,Su.

SOCIOLOGY

- 201: Principles and Elements of Sociology.** 0-3-3. An introduction to the structures and processes of group behavior. Su,F,W,Sp.
- 202: Social Problems.** 0-3-3. Selected social problems in contemporary American society. Su,F,W,Sp.
- 205: Introduction to Anthropology.** 0-3-3. Introduction to the origin and development of man; the nature and development of culture. Su.

- 304: Social Psychology.** 0-3-3. (Same as Psychology 304.) Preq., Psychology 102 or 202, and Sociology 201. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions. W.
- 306: Juvenile Delinquency.** 0-3-3. Preq., Psychology 102 or Sociology 201 or 202. The nature, causes, extent, and methods of treatment of juvenile delinquency. Sp.
- 308: The Family.** 0-3-3. A study of the family as a social institution with comparisons of family life in various societies. Su,W.
- 312: Minority Groups.** 0-3-3. Minority/dominant relationships, their formation, stabilization and modifications. Su,W.
- 313: The Sociology of Deviance.** 0-3-3. Factors and conditions which underlie disagreement about fundamental values; their relation to social maladjustment; evaluation of theories; group approaches to reintegration. W,Su.
- 314: Criminology.** 0-3-3. Theories of the genesis of crime; analysis of specific types of offenders, prevention, control, and treatment. F,Sp.
- 318: Social Control.** 0-3-3. Informal and formal regulative processes in social behavior, with reference to techniques and processes of social control. Su.
- 320: Research Methods.** 0-3-3. Preq., Math 200 or consent of instructor. Scientific methods and their application in social analysis; procedures in testing sociological theory; collection and evaluation of data.F.
- 331: Sport and Society.** 0-3-3. Preq., Soc. 201 or consent of instructor. Structures, processes, values, contributions, problems and consequences of sport as a social institution.W.
- 340: Urban Sociology.** 0-3-3. The influence of socio-cultural factors and their consequences for urban America. F.
- 345: Social Stratification.** 0-3-3. Types and results of social inequality; social class, status and power as determinants of behavior, values and life chances; social ascendancy in modern society. W.
- 401: Social Theory.** 0-3-3. Preq., junior standing. The development of sociological theory and its relation to research.Sp.
- 410: The Sociology of Child Abuse.** 0-3-3. The study of family violence with emphasis on the etiology of child abuse and resulting effects on the community. Special emphasis on prevention and treatment.W,Su.
- 416: Sociology of Education.** 0-3-3. The educational system and the larger society; education as a social structure and process; implications for students, teachers and administrators. W,Su.
- 420: Treatment of Offenders.** 0-3-3. Preq., Sociology 314. A study of principles of treatment of offenders; application of social science principles to treatment of offenders; interviewing, guidance, and counseling of offenders. Sp.
- 424: The Sociology of Corrections.** 0-3-3. Trends, issues and problems in the field of corrections.W.
- 460: Population Problems.** 0-3-3. Preq., junior standing. Scientific analysis of population distribution, composition, growth, migration, and vital processes. F,Sp.
- 305: Language Development for the Child with Learning Disabilities.** 0-3-3. The essentials of language needed to guide children with language-learning problems, including work meaning, language interactions, verbal-habit families, concepts and syntactical habits.
- 325: Introduction to Mental Retardation.** 0-3-3. Preq., Special Education 301. Medical, psychological, social, and educational aspects of mental retardation. Su,F,Sp.
- 335: Information on Childhood Diseases and Crippling Conditions.** 0-3-3. Emphasis on orthopedic conditions and chronic medical health problems with implications for education, psychology, social work, and occupational, physical, and speech therapy. Sp.
- 340: Management of Behavior Disorders.** 4-2-3. Preq., Special Education 300. Foundations of behavioral science, operant analysis of human behavior, learning principles, behavior modification principles and techniques; educational programs, supervised application of skills and techniques covered. W.
- 341: Psycho-social Management of Exceptional Children.** 4-2-3. Preq., Special Education 300. Non-behavioral teaching interventions emphasizing biophysical, psychodynamic, sociological, and ecological strategies; supervised application of skills and techniques using an instructional model which synthesizes strategies covered.
- 360: Education of the Partially Seeing Child.** 0-2-2. Preq., Special Education 301. Learning behavior, curriculum adaptation, educational programs, environmental movement and control, and behavioral characteristics of children with visual impairment. Sp.
- 375: Education Procedures and Materials in Special Education.** 4-2-3. Preq., Special Education 325, 335, or 340. Specific procedures of educating and re-educating children with retarded development, behavior problems, crippling and special health problems, use of special materials, crafts, art. Guided observation. Su,F,W,Sp.
- 460: Introduction to the Education of Preschool Handicapped Children.** 2-3-3. An introduction to the nature and needs of preschool handicapped children. Students will review literature, publications, trends, and model programs.
- 461: Teaching Strategies for Preschool Handicapped Children.** 4-2-3. Preq., Sp Ed 300, 460, and Home Ec 301. Emphasis on specific programs, materials and strategies for teaching young preschool children who have serious handicapping conditions. Areas covered include perceptual, motor, and intellectual development.
- 462: Language and Cognitive Development in Preschool Handicapped Children.** 4-2-3. Preq., Sp Ed 461. An emphasis on the identification, assessment and remediation of problems in language and cognitive development of preschool handicapped children.
- 463: Early Identification and Evaluation of Exceptional Children.** 4-2-3. Preq., Sp Ed 460. Early identification and evaluation principles and procedures, parent interviews, norm- and criterion-referenced measures; diagnostic evaluative assessment incorporated into individualized educational planning.
- 464: Parent Involvement and Community Resources for Education for the Exceptional Child.** 0-3-3. Preq., Sp Ed 300 and Sp Ed 460. Parent-teacher dualities and the dyadic process between child and teacher; material planning and implementation by parents through teacher modeling; community services.
- 465: Transdisciplinary and Ancillary Services in Special Education.** 4-2-3. Preq., Sp Ed 30 and 460. Study of related services to the handicapped, team control and contributions, strategies used in integrating overall life-experience planning and implementation.
- 471: Prevocational Skills and Procedures for Exceptional Students.** 4-2-3. Preq., Sp Ed 375 and 475. Competency-based prevocational education incorporated with curriculum design and informal assessment; long-term planning for vocational needs, occupational guidance. W.

SPECIAL EDUCATION

- 300: Introduction to Exceptional Children.** 0-3-3. A survey of the physical, emotional, social, and learning characteristics of exceptional children; educational programs; incidence and prevalence. Su,F,W,Sp.
- 301: Specific Learning Problems in Children.** 0-3-3. Preq., Special Education 300. Learning principles, issues, specific deficits in learning; assessment and remediation of problems in visual and auditory perception, cognitive processes, language; gross and fine motor coordination.W.
- 302: Characteristics of Exceptional Children.** 0-3-3. Preq., Special Education 300. Specific problems in cognitive, language and social skills related to academic and vocational training, special educator's role in management, planning, and resource or community interaction.

- 472: Vocational Procedures and Practices for Exceptional Students.** 4-2-3. Preq., Sp Ed 471. Experienced-based vocational education; process-oriented curriculum development; planned learning activities; formal assessment procedures; utilization of community resources; occupational preparation; review of exemplary programs. Sp.
- 475: Advanced Procedures in Special Education.** 7-1-3. Preq., Special Education 375 or permission of instructor. Individually supervised and systematically organized observation and participation in evaluative and educational procedures with exceptional children. Su, W.
- 477: Methods and Materials for the Severely and Profoundly Handicapped Child.** 4-2-3. Preq., Sp Ed 460. Instruction about alternate and supplementary modes, incorporation of adaptive equipment, use of aides, medical concerns, academic and vocational strategies, material development and handling. F.
- 480: Student Teaching in Special Education.** 35-2-6. Preq., meets all qualifications required for student teaching. Student teacher receives supervised experiences in observing, planning, directing and evaluating experiences of exceptional students leading to total responsibility for the instructional program in a classroom.
- 481: Student Teaching in Special Education.** 35-2-9. Preq., Meets all qualifications required for student teaching. Student teacher receives supervised experiences in observing, planning, directing and evaluating experiences of exceptional students leading to total responsibility for the instructional program in a classroom.
- 490: Psycho-social and Educational Appraisal of Exceptional Children.** 3-2-3. Preq., Education 402 and Sp Ed 300 or consent of instructor. Concepts of measurement applied to exceptional children; normative assumptions; measures of receptive and expressive language; social maturity; and perceptual-motor functions, observations of procedures.
- 495: Psycho-social and Educational Appraisal of Exceptional Children II.** 7-2-3. Preq., Special Education 490. Supervised administration of individual diagnostic tests, developmental scales, measures for the handicapped, interpretation and application to individualized educational planning and report writing. W.
- 500: Curriculum Design for Exceptional Children.** 4-2-3. An examination of issues and strategies required in selecting and developing curriculum for exceptional children. Emphasis on the scope and sequence of curriculum for all areas of exceptional children.
- 501: Contemporary Issues in Special Education.** 0-3-3 (6). Historical and comparative approaches to theoretical issues and research, critical examination of assumptions, sampling, and tactics of research.
- 502: Psychosocial and Educational Appraisal of Exceptional Children III.** 7-1-3. Preq., Special Education 490. Administration and interpretation of specialized individual tests, infant development scales, non-verbal tests for linguistically impaired, verbal tests for sensory handicaps, and accelerated academic assessment. W.
- 503: Educationally Disadvantaged.** 0-3-3. Biological, learning, interpersonal, and motivational determinants of behavior, cultural deprivation as a factor in school learning; educational implications.
- 510: The Exceptional Adolescent Student.** 0-3-3. Advanced course designed to acquaint the student with the complex challenges of the exceptional adolescent. Emphasis on remedial efforts, pre-vocational and vocational skills needed by the exceptional adolescent.
- 512: Consulting Strategies for Assessment Teachers.** 0-3-3. Preq., Special Education 490. Development of teacher and parent consultation skills, coordination and interaction of the education assessment teacher with classroom programs, and available community resources. W, Su.
- 515: Education of Gifted Children.** 0-3-3. The nature and needs of exceptionally able students with special emphasis on curriculum adjustment and research in the field. Sp.
- 520: Advanced Seminar: Mental Retardation.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in retarded behavior.
- 530: Advanced Seminar: Nonsensory Physically Impaired.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in crippling conditions and special health problems.
- 540: Advanced Seminar: Behavior Disorders.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in behavior disorders.
- 550: Field Work in the Education of Exceptional Children.** 12-0-3. Preq., Special Education 575. Internship in the application of principles of learning and child development from a behavioral approach to the educational needs of exceptional children.
- 560: Administration in Special Education.** 0-3-3. The major administrative and supervision functions necessary for the effective operation of special education programs and the major areas of knowledge necessary to carry out these basic functions.
- 561: Diagnostic/Prescriptive Educational Strategies and Materials for the Exceptional Students.** 4-2-3. Individualized interfacing of learning characteristics of exceptional students with curriculum requirements and environmental structure; emphasis on individualized prescriptive strategies and programs. W.
- 562: Advanced Seminar: School-Related Language Problems in Special Education.** 0-3-3. Analysis of language deviations and disorders in classroom situations, understanding of assessment, approaches and models for remediation/enrichment. Intervention and flexibility in curriculum development. Sp.
- 570: Advanced Seminar: Learning Disabilities.** 0-3-3. Advanced study of the biological, social, and psychological factors in learning disabilities.
- 575: Behavior Technology in Special Education.** 3-2-3. Preq., Special Education 475. Remediation of severe learning and behavior problems in children through programming and behavior modification; use of automated equipment for direct control of stimuli and contingencies.

SPEECH

- 110: Principles of Speech.** 0-3-3. Designed to develop the principles of effective oral communication in typical speaker-audience situations, through practice in informative and persuasive speaking. (Cannot be taken for credit if student has credit for Speech 377.) Su, F, W, Sp.
- 200: Discussion and Debate.** 0-3-3. Preq., Speech 110 or equivalent. A study of the principles of group discussion and debate with practical experience in each. F.
- 201: Introduction to Theatre.** 0-3-3. A comprehensive overview of the elements that comprise the theatre; intended as a basic preparation for an understanding of theatre art. F.
- 202: Supervised Observation.** 3-0-1. This course is designed to provide students with supervised observation of diagnostic and therapy sessions with clients who present speech, language and/or hearing disorders.
- 210: Introduction to Communicative Disorders.** 0-3-3. A study of the various disorders of communication, their nature, etiology, and treatment. F.
- 211: Public Speaking.** 0-3-3. Preq., Speech 110 or permission of instructor. This course is concerned with developing advanced skill in special occasion speeches, the book review, the entertaining speech, and effective reading from an original speech. W.
- 222: Phonetics.** 0-3-3. A study of vocal and physical aspects of standard American language and deviations therefrom as found in various regional dialects of the United States. W.
- 240: Acting.** 0-3-3. Basic training in the art of acting with emphasis upon the physical and vocal skills required for character portrayal. W.

- 308: Dactylography.** 0-2-2. An introductory course in manual communication of the deaf; emphasis on drills and exercises to help students acquire a sign vocabulary and conversational fluency.
- 312: Clinical Procedures.** 7 1/2-2-4. Students are taught principles and procedures used with clients with speech disorders through lecture, observation and supervised clinical experience. F,W,Sp.
- 315: Oral Interpretation of Literature.** 0-3-3. Preq., Speech 110. Advised, Speech 211. The development of responsiveness to prose, poetry, and drama, and the ability to communicate the logical emotional and aesthetic elements to others. F.
- 319: Group Interpretation.** 0-3-3. Preq., Speech 110 and 315. Interpretation of prose, poetry, and drama through the group mediums of Chamber Theatre, Reader's Theatre, and Choral Reading.
- 330: Voice and Diction.** 0-3-3. Preq., Speech 110. Designed to meet the practical needs of the elementary school teacher including training in phonetics, pronunciation, reading to children, and public address. F,Sp.
- 340: Introduction to Broadcasting.** 3-2-3. Consideration of the fundamentals of broadcasting; includes field trips to observe operations of nearby radio and television stations. Sp.
- 350: Broadcast Writing/Editing.** 3-2-3. Script preparation, writing to and for film and videotape for broadcast by radio or television. F.
- 360: The Mass Media.** 0-3-3. Consideration of these media from the viewpoint of their audiences; emphasizes the development of objective standards for evaluating mass communications. Open to all students. F.
- 361: Television Techniques.** 3-2-3. Provides direct experience in the production of television programs, using closed-circuit studio facilities and videotape equipment. W.
- 370: Broadcast Advertising.** 3-2-3. The creation, preparation and delivery of commercial messages for radio and television. Sp.
- 371: Broadcast News.** 3-2-3. The gathering, preparation, and delivery of news for broadcast by radio and television. W.
- 377: Oral Communications.** 0-3-3. Designed to establish a foundation for effective speaking in informative speaking, in the interview, and in the communication from the manuscript. (Cannot be taken for credit if student has credit for Speech 110.) Su,F,W,Sp.
- 401: Stagecraft.** 4-3-4. Practical experience in scenery construction, painting, stage lighting, and organizational techniques. F.
- 402: Advanced Acting.** 0-3-3. Preq., Speech 240. A study in the practice of styles of acting from ancient Greece to the present. Sp.
- 404: Theatre Practicum.** 4-0-1. Practical experience in interpretation, acting, directing, or technical theatre. May be repeated for a maximum of 4 hours credit. Su,F,W,Sp.
- 406: Play Production.** 0-3-3. An introductory course in the problems of play production, including directing, scenery construction and painting, stage lighting, backstage organization, stage makeup and costuming. W.
- 407: Advanced Play Production.** 0-3-3. Preq., Speech 406. A seminar course with emphasis on play directing. Each person registering for this course will produce and direct a full-length play for public production. Sp.
- 411: Diagnostic Procedures.** 0-3-3. Principles and procedures for differential diagnosis of speech and language disorders. Administration and interpretation of various tests, parent interviewing, and clinical observation of behavior. Sp.
- 412: Advanced Clinical Procedures.** 7 1/2-2-4. Preq., Speech 312. Students are given supervised clinical experience with a variety of speech and language disorders utilizing clinical populations in a variety of settings. F,W,Sp.
- 413: Articulation.** 0-3-3. A study of the nature, etiology, and retraining procedures related to defective articulation with emphasis on current research. W.
- 415: Shakespeare.** 0-3-3. The major plays and the poems. (Same as English 415.)
- 416: Advanced Oral Interpretation of Literature.** 0-3-3. Preq., Speech 315. A continuation of Speech 315 in which the student increases skill in analyzing literature, and further develops the ability to communicate the author's meaning. Sp.
- 418: Language Disorders in Children.** 0-3-3. Preq., Speech 470. A beginning course in the study of language disorders in children with emphasis on evaluation and treatment procedures. W.
- 420: Voice Science.** 0-3-3. The anatomy and physiology of the speech and hearing mechanism and the acoustic and perceptual characteristics of speech sounds.
- 424: The Development of the Theatre.** 0-3-3. A study of the evolution of the theatre from ancient to modern times.
- 425: Stuttering.** 0-3-3. A beginning course in stuttering and allied disorders with emphasis on symptomatology, evaluation, rehabilitation, and prevention. F.
- 428: Contemporary Developments in Theatre.** 0-3-3. A study of theatre development since 1900. This course will cover trends, movements, and genres in all areas of theatre. Sp.
- 440: Principles of Communicative Interaction.** 0-3-3. The study of principles and processes basic to communicative interaction.
- 443: Introduction to Audiology.** 0-3-3. Study of the auditory mechanism, physics of sound, the process of hearing, disorders of hearing and their treatment. F.
- 444: Hearing Testing.** 0-3-3. Preq., Speech 443. A lecture-laboratory course dealing with pure-tone, air and bone condition audiometry, speech audiometry, and special tests used in audiometric evaluation. W.
- 445: Aural Rehabilitation.** 0-3-3. Preq., Speech 444. Principles and procedures of retraining hard of hearing children and adults, including auditory training, speech reading, and the effects of hearing loss on total development. Sp.
- 446: Voice Disorders.** 0-3-3. An introduction to voice disorders, their symptomatology, etiology, diagnosis, and treatment. F.
- 451: Advanced Discussion and Debate.** 0-3-3. Preq., Speech 200 or equivalent. Designed to prepare students for organizing and conducting a forensic program.
- 453: Rhetorical Theory.** 0-3-3. The evaluation of speech composition from classical to modern times.
- 454: American Public Address.** 0-3-3. Preq., Speech 110. Study of American oratory from colonial times to the present. W.
- 460: Applied Forensics.** 3-0-1. Practical experience in debate and other forms of forensic speaking. May be repeated for a maximum of 4 hours credit. Su,F,W,Sp.
- 465: Applied Practicum.** 6-0-2. Practical experience in clinical activities related to service programs. May be repeated for a maximum of 6 hours credit. Registration by permission of instructor.
- 466: Group Processes.** 1-1-1. Practical experience in conducting group meetings, group discussions, and parliamentary procedure. Open to all students.
- 470: Language and Speech Development.** 0-3-3. Study of the normal acquisition and maintenance of speech and language; theoretical formulations about speech and language behavior, and approaches to its study. F.
- 480: Voice for the Stage.** 0-3-3. A study of the use and training of the human voice for performance utilizing the Lessac system of voice training. F.
- 500: Introduction to Research.** 0-3-3. A course designed to introduce students to research applicable to speech and theories of measurement including statistical and behavioral designs, reliability and judgments.
- 501: Seminar.** 0-3-3. Individual problems and research in any of the following general areas of concentration; speech communication; speech-language pathology; audiology; theatre arts. Registration by permission of instructor.
- 502: Studies in Scene Design.** 0-3-3. Preq., Speech 406. A seminar course in the history, theory, and practice of design and construction of stage scenery.

- 508: Practicum in Communicative Disorders.** 6-0-2- (8) . Supervised clinical experience with individuals who have disorders of communication.
- 509: British Public Address.** 0-3-3. A study of significant oratory in British history.
- 510: Speech Science.** 0-3-3. Study of normal speech and voice production with emphasis on respiratory and phonatory mechanism, speech acoustics, speech perception and control.
- 511: Studies in Stage Costuming.** 0-3-3. Preq., Speech 406. A seminar course in the history, theory, and practice of design and construction of stage costume.
- 512: Seminar in Parent Counseling.** 0-3-3. Study of literature pertaining to parents of children with communicative disorders, emphasizing therapeutic and/or educational approaches.
- 513: Seminar in Articulation Disorders.** 0-3-3. Study of current research in articulation, testing, prediction, and management procedures.
- 515: Theatre Management.** 0-3-3. Study of theatre management concentrating on organization of business and administrative areas of theatre.
- 516: Studies in the History of Interpretation.** 0-3-3. Preq., Speech 315 and 319. Consideration of critical writings in interpretation from ancient times to the present.
- 518: Interpretation of Contemporary Drama.** 0-3-3. Preq., Speech 315 and 319. A study of American and European Drama from 1940 to the present with major emphasis on oral performance.
- 519: Clinical Supervision.** 7 1/2-2-4. Students are taught principles and procedures involved in clinical supervision. They assist faculty supervisors in their work with beginning student clinicians. May be repeated.
- 520: Seminar in Language Disorders in Children.** 0-3-3. Preq., permission of instructor. A study of the linguistic and neurological aspects of behavior relative to disorders of language in children with emphasis on assessment and treatment.
- 522: Experimental Phonetics and Linguistics.** 0-3-3. Study of selected current issues and developments in experimental phonetics with opportunity for individual research projects.
- 523: Aphasia.** 0-3-3. A study of the etiology and symptomatology with emphasis on principle theoretical treatment, instruments for evaluation and methods of clinical management of aphasia and related disorders.
- 524: Seminar in Voice Disorders.** 0-3-3. A study of the etiology, symptomatology and treatment procedures for voice disorders, including those that result from laryngeal pathologies.
- 525: Cleft Palate.** 0-3-3. A study of the articulatory, resonance and phonatory problems associated with cleft palate and facial maxillary disturbances including medical and speech therapy, habilitative and rehabilitative procedures.
- 526: Seminar in Stuttering.** 0-3-3. A critical review of the literature to synthesize information regarding the definition of stuttering, theories of etiology, symptomatology, therapy and methods of research.
- 528: Neurological Disorders.** 0-3-3. A study of communication disorders which result from damage to the central and peripheral nervous system, their etiology, symptomatology, diagnosis, and treatment.
- 530: Special Problems in Communicative Disorders.** 0-3-3. Registration by permission of instructor. Individual research assignments in speech pathology and audiology.
- 531: History of Drama.** 0-3-3. Preq., Speech 424. A survey of dramatic literature from ancient times to the present.
- 532: Theories of Directing.** 0-3-3. A seminar course in the theories of major innovators in directing from Saxe-Meiningen to the present.
- 533: Differential Audiology.** 0-3-3. Discussion, demonstration and interpretation of special tests used to differentiate various audiological problems.
- 535: Hearing Aids.** 0-3-3. Involves discussion of hearing aids, selection procedure, and the amplification needs of the individual.
- 536: Analysis and Criticism of Drama.** 0-3-3. A seminar course in the theory of critical analysis of drama from Aristotle to the present.
- 538: Theories of Acting.** 0-3-3. A seminar course examining theories and approaches to acting from Stanislavsky to the present.
- 540: Industrial Audiology.** 0-3-3. Directed toward the study of management and control of hearing problems in industry, and conservation of hearing in occupations and activities involving excessive noise exposure.
- 543: Seminar in Pediatric Audiology.** 0-3-3. Investigation of the audiological problems of children.
- 545: Clinical Audiological Experience.** 9-0-3. Supervised practice in the use of various audiological tests on patients having hearing impairments. Includes report writing and counseling procedures. May be repeated one time for credit.
- 548: Psychoacoustics.** 0-3-3. A study of the experimental areas of audiology that are directed toward developing a theory of auditory functioning. May be repeated one time for credit.
- 549: Seminar in Educational Audiology.** 9-0-3. Review of topical areas in aural rehabilitation for the infant through geriatric population.
- 570: History of Speech Education.** 0-3-3. Development of speech as a discipline in general education from ancient to modern times.

STATISTICS

- 200: Basic Statistics.** 0-3-3. Preq., Two semester hours of mathematics numbered above 107 or consent of instructor. Frequency distributions, histograms, data grouping, mean, median, mode, standard deviation, basic probability, expected values, sampling, normal distribution, correlation, linear regression, simple tests of hypothesis.
- 402: Introduction to Statistical Analysis.** 0-3-3. Preq., Junior standing and the consent of the instructor. Descriptive statistics, probability distributions, estimation, sampling distributions, tests of hypothesis, regression and correlation, use of SAS packages.
- 418: Introduction to Statistical Procedures.** 0-3-3. Preq., Mathematics 228 or consent of instructor. Sampling, normal population, group-comparisons, tests of hypothesis, t-test, F-ratios, correlation, regression and one-way analysis of variance.
- 428: Experimental Design.** 0-3-3. Preq., Statistics 418. Multiway analysis of variance to include randomized block design, Latin square design, Graeco-Latin square design, factorial analysis, repeated measures design, and split-plot design.
- 448: Theory of Probability.** 0-3-3. Preq., Math 330 or consent of instructor. Discrete and continuous density functions, expected value moments and moment generating functions, central limit theorem.
- 549: Theory of Statistics.** 0-3-3. Preq., Stat 448 or consent of instructor. Sampling distributions, point estimation, interval estimation, hypothesis testing, linear models.
- 558: Linear Statistical Models.** 0-3-3. Generalized inverses, quadratic forms, Gauss Markov Theory, estimability, full rank models, non-full rank models and covariance.
- 568: Experimental Design.** 0-3-3. Preq., Stat 428. Incomplete block design, hierarchical designs, confounding, fractional replicates, response surface analysis.
- 570: Stochastic Processes.** 0-3-3. Preq., Stat 448. Generating functions, recurrent events, random walk models, Markov processes, branching processes, homogeneous and non-homogeneous processes, queuing processes.

STUDY SKILLS

- 099: Developmental Study Skills.** 0-2-2. Identification and application of practical study techniques and attitudes associated with college success; identification of goals; time management and scheduling.

TECHNICAL DRAFTING

- 101: Elementary Drafting.** 6-1-3. Care and use of drawing equipment. Freehand lettering. Freehand sketching and mechanical drawing of simple objects.
- 102: Machine Drafting.** 6-0-2. Preq., Technical Drafting 101. Continuation of Technical Drawing 101. Sections, auxiliary views and dimensioning.
- 103: Working Drawings.** 6-0-2. Preq., Technical Drafting 102. Assembly drawings. Tolerancing. Threads and fasteners. Mating parts.
- 201: Technical Illustrations.** 6-0-2. Preq., Technical Drafting 102. Axonometric drawings. Oblique drawings. Perspective drawings.
- 202: Advanced Topics in Technical Drawings.** 6-0-2. Preq., Technical Drafting 103. Machine drawings, welding drawings, tool design drawings, structural drawings, process flowcharts.
- 204: Piping Drafting.** 6-0-2. Preq., Technical Drafting 101, 201. Fundamental piping drawing as used in refinery and petrochemical plant design.
- 205: Development of Surfaces.** 6-0-2. Preq., Engineering 162. Developmental drawings of all classes of surfaces; intersections.

VETERINARY SCIENCE

- 301: Anatomy and Physiology of Animals.** 3-2-3. The structures and functions of the tissues and organs of animals. Sp.
- 401: Animal Pathology.** 3-2-3. Preq., Bacteriology 210. The etiology, symptoms, prevention, control, and eradication of the major diseases of farm animals. F.

ZOOLOGY

- 105: Zoology and People.** 0-3-3. A course for general academic students. Presents cellular, genetic, developmental, morphological and physiological aspects of zoology especially as they relate to humans and their environment. Not designed for students desiring to pursue additional zoology courses. Su,F,W,Sp.
- 111: Concepts in Zoology.** 0-3-3. Designed for freshmen majoring in science fields and prerequisite to all other zoology courses. Principles, problems and experimental methods of animal biology, including studies of cellular, tissues and organ levels of development in ecological, evolutionary and genetic contexts. Su,F,W,Sp.
- 112: Laboratory Studies in Zoology.** 3-0-1. Preq., Zoology 105 or 111 or concurrent enrollment. Student-oriented experiments integrated with a survey of animal life. Su,F,W,Sp.
- 115: Animal Diversity.** 0-3-3. Preq., Zoology 111 and 112 or equivalent. A study of the diversity of form and function based on the several animal phyla. W,Sp.
- 116: Animal Diversity Laboratory.** 4 1/4-0-1. Coreq., Zoology 115. Laboratory studies on diversity in animal phyla. W,Sp.
- 200: Human Reproduction.** 0-1-1. (Pass-Fail). A factual study for the proper understanding of the physical, emotional, and behavioral aspects of human reproduction. Offered on demand.
- 202: Comparative Anatomy of Vertebrates.** 8 1/2-2-4. Preq., Zoology 111, 112, 115, 116. Comparative anatomy and evolution of the vertebrates. F,Sp.
- 225: Human Anatomy and Physiology.** 0-3-3. Consult with your advisor. The structures and functions of the organ systems of the human body, including anatomy of the vocal and hearing mechanisms. Not open to students in premedicine, predentistry or zoology majors. Su,F,W,Sp.
- 226: Anatomy and Physiology Laboratory.** 4 1/4-0-1. Preq., credit for or registration in Zoology 225. A laboratory to permit the student to observe through specially designed exercises the physiology and anatomy of mammals. F,W,Sp.
- 310: Animal Genetics.** 4 1/4-2-3. Preq., Zoology 111, 115 or consent of the instructor. Principles of inheritance at the biochemical, cellular, organismal and population levels with emphasis on standard laboratory organisms, wild and domesticated animals, and human applications. W,Sp.
- 313: Animal Ecology.** 4 1/4-2-3. Preq., Zoology 111 or 112. The fundamental principles of ecology as they apply to population dynamics, communities and zoogeographic distribution of animals. F,Sp.
- 315: Cell Biology.** 0-3-3. Preq., Zoology 111, 112. The cell is studied as to the structural and functional organization of the protoplasm, and its relation to metabolism and heredity. W.
- 317: Game Management Techniques.** 4 1/4-2-3. Preq., Zoology 111, 112. A study of the principles and techniques employed in the management of game birds and mammals and their identification. W, even.
- 320: Principles of Animal Physiology.** 0-3-3. Preq., Zoology 111, 112, 115, 202. Coreq., Zool 321. A general and comparative approach to the principles and concepts of Physiology which apply to animal systems. F,W.
- 321: Principles of Animal Physiology Laboratory.** 4 1/4-0-1. Coreq., Zoology 320. Laboratory studies in animal physiology. F,W.
- 350: Zoological Problems.** 4 1/4-0-1- (6) Preq., junior standing and written permission of instructor. An introduction to the principles of research. S,W,F,Sp.
- 400: Microscopy: Theory and Application.** 4 1/4-1-2. The theory and practice of light microscopy, photomicroscopy and microtechnique. F.
- 401: General Parasitology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116, or equivalent. A comparative study of animal parasites and their relationship to the hosts. F,Sp.
- 405: Histology.** 8 1/2-1-3. Preq., Zoology 320, 321, or equivalent. Microscopic study of animal tissues with emphasis on functional and structural interrelationships. W.
- 410: Advanced Genetics.** 4 1/4-2-3. Preq., Zoology 310 or Life Sciences 300 or consent of the instructor. Principles, techniques and experimental methods for investigations of chromosomal variation, pedigree analysis, metabolic pathways, polygenic traits and population genetics. F.
- 411: Developmental Biology.** 4 1/4-3-4. Preq., Zoology 111, 112, 115, 116 or permission of instructor. A study of gametogenesis, fertilization and the embryological development of organisms using descriptive and experimental approaches. W.
- 414: General and Economic Entomology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116, or equivalent. Study of insect structure, classification, life cycles and control practices, with emphasis on economic pests. F, even.
- 415: Pestology.** 0-3-3. Preq., Zoology 111, 112, or by permission of instructor. Study of the arthropods that are vectors of disease organisms to man and animals and the economic losses resulting from these pest infestations. F.
- 420: Environmental Physiology.** 4 1/4-3-4. Preq., 12 hours of Zoology including 320 and 321. Functional adaptations of animals to their environments, with emphasis on vertebrates. Lab consists of a formal research project. F, even.
- 421: General Pharmacology.** 0-3-3. Preq., 12 hours of zoology and 8 hours of chemistry or by permission of the instructor. A study of the physiological and biochemical effects produced by drugs with emphasis on theories of the mode of cellular level action. Offered on demand.

- 423: Endocrinology.** 0-3-3. Preq., Zoology 320, 321, or equivalent. A study of the embryology, anatomy, biochemistry, and physiology of the endocrine glands in various animals. F.
- 425: Principles of Electron Microscopy.** 4 1/2-1-2. Preq., graduate standing and written permission of the instructor. Essential methods for routine biological electron microscopy: instrument operations, photomicrography, tissue sectioning and knife preparation. W, odd.
- 426: Evolution.** 0-3-3. Preq., Zoology 111 or equivalent. A study of the concepts, problems and methods involved in the formulation of modern evolutionary theory. Sp.
- 429: Ichthyology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. Systematics, anatomy, and ecology of fish with emphasis on local freshwater species. F, even.
- 430: Herpetology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The taxonomy, distribution, life histories, and ecology of the Herptiles, with special emphasis on those species found in Louisiana. Sp, even.
- 432: Mammalogy.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The identification, taxonomy, characteristics and general biology of mammals with emphasis upon those of North America. W.
- 433: Ornithology.** 4 1/4-2-3. Identification, taxonomy, characteristics, and general biology of birds, with emphasis upon those in North America. Sp.
- 434: Limnology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The study of the chemical, physical and biotic aspects of the freshwater environment. F, odd.
- 436: Field Zoology for Teachers.** 4 1/4-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of ectothermic vertebrates and aquatic ecology. Not open to majors in Zoology or Wildlife Curricula. Offered on demand.
- 437: Field Zoology for Teachers.** 4 1/4-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of warm-blooded vertebrates and terrestrial ecology. Not open to majors in the Zoology or Wildlife curricula. Offered on demand.
- 480: Undergraduate Seminar.** 0-1-1- (2) . Preq., senior standing. Required of all senior zoology majors. Supervised study, reports, and discussion of current zoological literature. F,W,Sp,Su.
- 510: Biology of Water.** 4 1/4-2-3. Preq., Permission of the instructor. A detailed study of biotic adaptations and the effects of environmental changes in the aquatic ecosystem with emphasis on aquatic vertebrates.
- 515: History of Zoology.** 0-3-3. The historical development of the science of Zoology, the persons who contributed to this development, and the nature of the times which produced them.Su.
- 516: Contemporary Topics in Zoology.** 0-3-3. An opportunity to examine and discuss a variety of timely topics pertaining to the Zoological Sciences. Offered on demand.
- 520: Principles of Zoological Systematics.** 0-1-1. A detailed study of taxonomic principles and procedures based on the International Rules of Zoological Nomenclature.

COUNCILS, COMMITTEES, COMMISSIONS and OTHER ADMINISTRATORS

The President and the appropriate Vice President are "ex-officio" members of all councils and committees.

ADMINISTRATIVE COUNCIL: F. Jay Taylor, Chairman; Hal B. Barker, George Byrnside, Elenora A. Cawthon, Jerry W. Andrews, E. S. Foster, Jr., Jeanne M. Gilley, Wiley Hilburn, Jr., Patsy Lewis, John E. Maxfield, Bob R. Owens, Robert F. Patterson, Paul J. Pennington, Dan Reneau, Jack Thigpen, John R. Williams, Chairman of the Faculty Senate, Student Government Association President.

ADMINISTRATIVE REVIEW BOARD: Vice President for Student Affairs, Chairman; Vice President for Academic Affairs, Dean of the College in which the student is registered.

ATHLETIC COUNCIL: H. J. Smolinski, Chairman; Jerry W. Andrews, James L. Hester, Wiley W. Hilburn, Jr., Paul J. Pennington, Daniel Reneau, Milton Williams, Student Representative, Charles Bussey (non-voting).

BEHAVIORAL STANDARDS COMMITTEE: The Behavioral Standards Committee shall be selected from a roster composed from the following: twelve faculty members appointed by the Vice-President for Academic Affairs; one senior male and one senior female appointed by the Residence Hall Association (RHA); four senior men and four senior women students appointed by the President of the University from a list of six senior men and six senior women nominees submitted by the Student Association; and a chairperson and alternate chairperson appointed by the Vice President for Student Affairs.

CAMPUS PLANNING COMMISSION: Campus Engineer, Chairman; Deans of Academic Colleges, Dean of Student Life, Athletic Director, Physical Plant Director.

CATALOGS AND BULLETINS COMMITTEE: Robert Doyle Holstead, Chairman; John Edwin Carothers, John Murad, Donald R. Nelson, Student (Usually Editor of THE TECH TALK).

CIVIL DEFENSE COMMITTEE: E. S. Foster, Chairman, Dan Reneau, George Byrnside, John Trisler, Ron Thompson, Ray Janway, W. D. McBride.

COUNCIL OF ACADEMIC DEANS: Vice President for Academic Affairs, Chairman; Hal B. Barker, Jerry W. Andrews, Jeanne M. Gilley, Patsy Lewis, John E. Maxfield, Bob R. Owens, Paul J. Pennington, Jack Thigpen.

COMMENCEMENT COMMITTEE: Bill J. Attebery, Chairman, Marty Beasley, Jack Canterbury, Bill Carter, Ann Futrell, Ray Janway, Calvin Lemke, Flo Miskelly, Reba K. Neel, Albert Lazarus, James Spencer, Raymond Young, two student representatives.

FACULTY SENATE: The membership includes elected representatives from the Faculty who are employed full time and professional personnel engaged in Specialized Academic Services. Members shall serve for a term of three years.

FEF COMMITTEE: Dan Reneau, Chairman; George Byrnside, Jerry Drewett, E. S. Foster, President Student Government Association.

GRADUATE COUNCIL: John E. Maxfield, Chairman, Harold Hedrick, Charles Foxworth, John Goertz, Mabel Hemphill, Jerry Miller, Bobby E. Price, Phil Rice, Eleanor Rockett Brown, Paul Schauwecker, Tony Jurkus, John Leich, Ken

Rea, Nancy Tolman, Lynda Clements, James D. Lowther, graduate student representative.

GRIEVANCE COMMITTEE: The Executive Committee of the Faculty Senate shall select six members (one from each college); each division (including Student Affairs, Academic Affairs and Administrative Affairs) shall elect one member. Only non-classified staff personnel may be elected to represent the divisions. Members shall serve a three-year term of office.

HUMAN USE COMMITTEE: James Green, M.D. Chairman, Daniel D. Reneau, John Murad, Tommy Grafton, Jackie Garner.

INSTRUCTIONAL POLICIES COMMITTEE: Jeanne Gilley, Chairperson, Shirley Reagan, Dr. Pat Moseley, Dr. Ed Jacobs, Dr. Homer Ponder, Dr. Archer Huneycutt, Dr. Randall Barron, Mr. H. L. Henry, Dr. Albert Lazarus, Dr. John Wright, Dr. William Soper, Dr. E. J. Miller, Student Government Association President, two student representatives.

INSURANCE AND RELATED BENEFITS COMMITTEE: George Byrnside, Dan Reneau, E. S. Foster, Don Dyson, Glynn Aycock, Reggie Rives, Chairman, Barbara Robinson.

LIBRARY ADVISORY COMMITTEE: Norman Byers, Chairman; Hal B. Barker, Jerry W. Andrews, Jeanne M. Gilley, Denise LeBlanc, P. B. Moseley, Donald Nelson, Bob R. Owens, Paul J. Pennington, Jack Thigpen, Joe R. Wilson, Two junior or senior students.

PARKING AND TRAFFIC COMMITTEE: Vice President for Student Affairs, Chairman; representative from each of the academic colleges; Dean of Student Life; Director of Physical Plant; Campus Police Supervisor; one male and one female student appointed by the Residence Hall Association; Vice President of Student Association; three members of the Senate appointed by the SGA President.

PROGRAM COMMITTEE: J. Harold Gilbert, Chairman; Charles Foxworth, Sallie Hollis, M. R. Johnson, Dallas Lutes, Shirley Reagan, Katherine Robinson, four students.

RADIATION COMMITTEE: James Malone, Chairman; W. H. Brumage, Winston Hackbarth, Nancy Tolman, student representative.

RESEARCH COUNCIL: John E. Maxfield, Chairman, Charles Bolz, Vice-Chairman, Randall Barron, Jerry Drewett, James R. Michael, P. B. Moseley, John Murad, Bobby Price, Joe Thomas, Nancy Tolman, James Williams, Dudley Yates, one senior or graduate student.

SCHOLASTIC STANDARDS COMMITTEE: Hal B. Barker, Chairman, Glynn Aycock, Jerry W. Andrews, Ross Dobbs, Jeanne M. Gilley, Patsy Lewis, Bob R. Owens, Paul J. Pennington, Eleanor Rockett, J. C. Seaman, Jack Thigpen, Dan Reneau, two student representatives.

STUDENT ORGANIZATIONS COMMITTEE: Dean of Student Life, Chairman; Vice Chairman of the Faculty Senate, Chairman of the Student Association Department of Internal Affairs and two members of that department, the Activities Director, a representative from the Division of Student Affairs, and advisor from: the Student Government Association, the Union Board, the Interfraternity Council, and the Panhellenic Council, a student representative from: the Interfraternity Council, the Panhellenic Council.

UNIVERSITY TOUR COMMITTEE: Dean Paul Pennington, Chairman, Vice President Byrnside, Dr. John Leich, Mr. Jerry Drewett, Mr. Steve Rodakis, Student Government Association President.

WATER RESOURCES ADVISORY COMMITTEE: Bobby E. Price, Chairman; Randall Barron, James R. Michael, P. B. Moseley, John Murad.

UNIVERSITY FACULTY

Adams, John Clyde; *Associate Professor, School of Forestry.*—BSF, MS, PHD, LA State Univ. (1976) Associate Graduate Faculty.

Akers, James B; *Professor, Physical Education.*—AB, Drury College; MS, Kansas State Univ; EDD, Univ. of Arkansas. (1977) Associate Graduate Faculty.

Alberti, Dino A; *Assistant Professor, Library*—BA, MA, La Poly Inst; MS, La State Univ. (1967).

Albritton, Lou Ann; *Assistant Professor, Physical Education.*—BS, MS, La Poly Inst. (1965)

Allen, Phoebe; *Associate Professor, Art.*—BA, MA, La Poly Inst. (1965) Associate Graduate Faculty

Anderson, Dwight C; *Associate Professor, Economics and Finance*—BS, MBA, La Tech Univ; PHD, Univ of Alabama. (1979) Graduate Faculty

Armstrong, Larry Bennett; *Assistant Professor, School of Professional Accountancy.*—BS, La Poly Inst; MBA, La State Univ. (1966)

Attebery, Billy J; *Professor, Mathematics and Statistics.*—BSE, Univ of Central Ark; MA, Univ of Ark; PHD, Univ of Missouri. (1966) Graduate Faculty

Attrep, Abraham M; *Professor, History.*—BA, La College; MA, Tulane Univ; PHD, Univ of Georgia. (1962) Graduate Faculty

Baker, Riley E; *Associate Professor, Social Sciences.*—BS, MS, North Texas State Univ. (1962) Graduate Faculty

Balsmeier, Phillip W; *Associate Professor, Business*—BA, Emporia St. Univ; MS, Wichita St. Univ; PHD, Univ. of Ark. (1980) Graduate Faculty

Barham, Robert Ewing; *Assistant Professor, English.*—BA, MA, La Poly Inst. (1965)

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Bergusson, Robert Jenkins; *Associate Professor, Art.*—BA, MA MFA, Univ of Iowa; AA, Corning Community College. (1970) Graduate Faculty

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- Herrmann, Leo Anthony;** *Professor, Geosciences Engineering*—BS, Miami Univ; PHD, Johns Hopkins Univ. (1966) Graduate Faculty
- Hester, James L;** *Professor, Business*—BS, MBA, Miss State Univ; PHD, Univ of Ark (1966) Graduate Faculty
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- Huckabay, Georgia F;** *Assistant Professor, Music*—BME, MM, Univ of Southern Miss. (1973)
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OTHER ADMINISTRATORS

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David W Carnal, B.S. (1973) Director of Housing
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David Deal, B.S. (1980) Financial Information Systems
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Charles Foxworth, B.A., M.A., Ph.D. Director of Graduate
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Harold G. Hedrick, B.A., M.A., Ph.D. (1969) Director of Graduate Studies, College of Life Sciences
H. L. Henry, B.S., M.S. (1946) Associate Dean, College of Engineering
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James Robert Michael, B.S., M.B.A., D.B.A. (1968) Director, Division of Administration
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Homer G. Ponder, B.S., M.S., Ph.D. (1966) Director, Undergraduate Division, College of
Administration and Business
Jack Potter, B. S., M. S. (1966) Campus Engineer
Bobby E. Price, B.S., M.S., Ph.D. (1967) Director, Water Resources Center
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College of Administration and Business
Eleanor S. Rockett Brown, B.S., M.S. (1959) Registrar
Galen Rockett, B.A., M.A., (1977) Director, Student Center
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Bonita Smith, B.S., MBA, CPA (1979) Assistant Comptroller
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Daniel B. Temple, B.S., M.S. (1980) Director, Computing Center
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John A. Wright, B.S., M.S., Ph.D. (1953)	Associate Dean, College of Life Sciences
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ATHLETIC PERSONNEL

Charles W. Bussey, Jr.	Athletic Director
Randy Robertson	Director of Promotions & Fund-Raising
Billy Brewer	Head Football Coach
Rikki Black	Director of Assembly Center
Randy Crouch	Assistant Football Coach
Larry Dauterive	Assistant Football Coach
David Hines	Assistant Football Coach
Carl Torbush	Assistant Football Coach
Robert Youngblood	Assistant Football Coach
Robert McGraw	Assistant Football Coach
Mickey Merritt	Assistant Football Coach
John Causey	Assistant Football Coach
Sonja Hogg	Assistant Athletic Director and Women's Head Basketball Coach
Leon Barmore	Women's Associate Basketball Coach
Gary Blair	Women's Assistant Football Coach
Bill Galloway	Women's Softball Coach
Andy Russo	Men's Head Basketball Coach
Tommy Joe Eagles	Men's Assistant Basketball Coach
Steve Welch	Men's Assistant Basketball Coach
James "Pat" Patterson	Baseball Coach
Michael Kane	Assistant Baseball Coach, Volleyball Coach, Rifle Coach and Soccer Coach
Billy Jack Talton	Powerlifting Coach
Aubrey Dooley	Track and Field Coach
Dr. Edward Samaha	Men's Tennis Coach
William Keith Prince	Sports Information Director
Dave Nitz	Assistant Sports Information Director
Sam Wilkinson	Athletic Trainer
Bob Rash	Assistant Athletic Trainer

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